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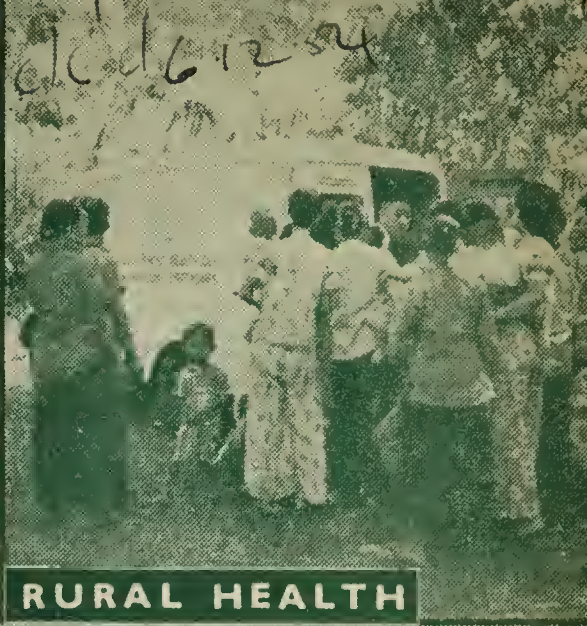

RURAL HEALTH

APY

MALARIA

ANNUAL REPORT

OF THE

Medical Department

1953

LONDON ★ AND TROPICAL MEDICINE

LANCES

COLONY OF SINGAPORE

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Domiciliary Midwifery—A midwife goes on foot to attend a case in a rural area where transport cannot reach

COLONY OF SINGAPORE

MEDICAL DEPARTMENT ANNUAL REPORT 1953

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PART I

GENERAL

CHAPTER ONE

INTRODUCTORY

1. The year 1953 is of particular significance to the people of the Colony of Singapore in that while it demonstrated the satisfactory advance in the general public health over the post-war period it marked the most important step forward so far in the Medical Plan which was designed some five years ago to double all our medical and health facilities. This advance is in its turn steadily solving many of the difficulties which have faced the Medical Directorate over the post-war decade.

2. The outstanding improvement in the recruitment of nurses is especially relevant. For the first time in local history the December recruitment campaign exceeded expectations. One hundred probationers was the aim but eventually 128 joined the schools apart from thirty-one assistant nurses. At the moment of writing the total nursing strength is as follows as compared with pre-war and immediate post-war figures:—

1941	*1946/47*	*1953/54*
360	300	750

3. There is no doubt that the magnificent new Nurses Home completed during the year for 250 probationers and the increased propaganda stressing the advantages of nursing as a modern career for Singapore's youth have played their parts in this success. Its effect on the medical service provided for the public and on the advance of our Medical Plan cannot be exaggerated. It has been said time and again that a satisfactory medical service and a satisfactory advance depend primarily on sufficient nurses of adequate calibre. The danger margin in the first of these respects would appear to have been passed at long last. From now on all the recruits we require should be forthcoming without difficulty provided the additional accommodation it is intended to establish during the year 1954, and later, for quarters and training purposes are forthcoming. One difficulty will still remain, however, and that is the undue proportion of trainees. Only time can cure this defect, but it does mean the addition of a certain number of specialists and experienced nurses from outside sources for some time to come, both to ensure a proper standard in training and in public service. This will not mean any reversal in the present policy of promotion of local nurses of the right quality. There will be room for all in the expanding service. So far there are fifty-one local sisters out of a total of eighty-nine. The above figures of nursing strength will indicate sufficiently the grave difficulties which have existed since the end of the war in meeting the enormous and constantly increasing demand from the public with such a small staff, while at the same time building up a high standard of training. There is no doubt that Singapore is now well on its way to an outstandingly fine nursing service and one which will fully merit the trouble and expense exerted in its development.

4. The number of sister tutors has been increased in the Estimates from two to four, and the World Health Organization has kindly agreed to lend a further two over a period. This total will still be on the small side in dealing with the number of nurses in training in addition to the constant revision courses which are a part of the modern method of teaching.

5. While the medical staffing position has eased also over the last twelve months the rapid expansion in public demand must be kept constantly in mind. 1955 should see a sufficient recruitment from local sources to meet this demand provided the establishment is increased in due course. There will still remain that dangerous gap between the experienced and the inexperienced, however, which must be met by additions, albeit small, from overseas. Here again the expansion required under the Medical Plan should meet adequately any such small requirement in this respect without prejudicing the chances of the local graduate. The Medical Service of such an important centre as this cannot carry on indefinitely without the 'registrar type' of medical officer, and particularly so if the local organization is to continue as a part of an expanding Medical School. Every year sees more and yet more of the staff on study leave overseas, a development which must create a leave reserve. A trainee scheme in connection with specialization is in process of finalization: it awaits the comments of the Medical Education Enquiry Committee which visited this country from the United Kingdom towards the end of the year. The Committee consisted of Sir David Lindsay Keir as Chairman, with Professor P. Kilner, C.B.E. and Professor Biggart, C.B.E. as members. The many hours of discussion and visits which took place testified to the exhaustive nature of the enquiry which covered all aspects of the local medical service and its personnel.

6. As the Medical School is now part of the University of Malaya, the report on its activities as such is omitted from this brief review. The University issues its own report which includes that of the Medical Faculty. Suffice it to say here that the financial aid system to students was continued. With regard to new students the Singapore Government awarded twelve new bursaries during the year—to eleven medical students and to one dental student.

The following shows the number of students in the different years:—

	Medical	*Dental*	*Pharmacy*
First year	89	21	10
Second year	57	14	7
Third year	56	17	—
Fourth year	56	14	—
Fifth year	43	21	—
Sixth year	45	—	—

7. One hundred and ten new students were admitted to the Medical Faculty at the beginning of the academic year of 1953 (eighty-one medical, twenty-one dental and eight pharmacy). The admission of a substantially larger number yearly than in pre-war days has raised many difficult problems concerned with hostel accommodation, teaching staff and hospital facilities. It is frequently overlooked that more or less the same medical organization has attempted to absorb three times the pre-war number of students.

8. Final professional examinations were held in June and December, fifty-four students qualifying in medicine and fifteen in dental surgery. To achieve a yearly figure of fifty graduates means that an average of over 65 students have to be forthcoming every year, to meet the 20 per cent wastage suggested by the Carr-Saunder's Report. It will be noted that this figure has only been approached comparatively recently.

9. A new Medical Act came into operation during the year whereby a houseman's year is an essential to full registration as a medical practitioner, following the practice in the United Kingdom. This procedure can only be of benefit to public and doctor alike.

10. The number of doctors, dentists and pharmacists as at 1st January, 1954, in the Colony was as follows:—

	Doctors	Dentists	Pharmacists
Private Practitioners ...	234	29 (qualified) 260 (unqualified)	66
Government	162	14	11
Housemen	26	4	—
University	31	7	2
City Council	10	—	—

Note:—Of the non-Government doctors seven are employed by Missions.

11. The following figures give some idea of those who have gone or are going overseas for study over the post-war decade:—

Returned from study courses overseas	18
Now on study courses overseas	21
Courses being finalised	8

12. Our medical planning not only has a vital bearing on the quantity and quality of the service which is and must be supplied to the public: it is equally important to the University if Singapore is to continue to be the Medical School of the country as it is at present. In consequence the Enquiry Committee studied our proposals with special attention, and the new Kandang Kerbau Maternity and Gynæcological Hospital and the proposed Pathology Institute are outstanding examples in this connection. The former aims at providing not only a most modern hospital for the purpose in every respect but an institution which will meet with the full requirements of the United Kingdom graduate and post-graduate qualification authorities. An adequate and up-to-date pathological service for the Colony and University has been one of the outstanding deficiencies up to the present. It is one which has been fully recognized under the Medical Plan. Of course staffing has been the outstanding difficulty in this respect—a factor which has been stressed from year to year.

13. The Plan was evolved in 1946/47 and was accepted by Government in 1948 after a study by a Select Committee of the Legislative Council. While the Select Committee's Report is included in the Appendices attached to this Report it must be realized in studying this that certain changes have been made in the proposals then accepted through considerations of economy and changing conditions. The final aims remain the same, however, and these can be summarized as follows:—

(*a*) the complete modernization and improvement and enlargement of all the existing hospitals;

(*b*) an expansion of the venereal disease hospital cum out-patient cum dispensary scheme;

(*c*) an adequate and modern settlement for persons suffering from leprosy;

(*d*) a modernization of our mental institutional treatment with special facilities for mental defectives;

(*e*) a chain of really attractive child and maternity clinics throughout rural Singapore; the more important of these to be combined with static dispensaries and so to form rural health centres in the fullest sense of that world;

(*f*) a chain of urban and rural district hospitals with an emphasis on an out-patient dispensary service;

(*g*) a modern quarantine and dangerous infectious diseases station combined with an adequate epidemiological service;

(*h*) a first class school medical and dental clinic service with mobile and static units based on an Urban Health Centre forming a chain linking to all the schools in the Colony;

(*i*) an expanding anti-malarial and sanitary control.

All this will be welded into a workable whole so that eventually the health of every section of the population will be sufficiently catered for. With the best will in the world this cannot be done under existing conditions and the fact cannot be ignored.

14. The original Plan contemplated some 1,500 beds on the General Hospital site. Later, for reasons of civil defence, this was changed to planning for two 750-bedded units on two sites. As a reasonable economy measure the ward accommodation in the General Hospital will be built up now to 1,350 beds with a considerable dispensary form of out-patients division in addition to its present new hospital out-patients one which is serving the dual purpose at the moment. The Kandang Kerbau Women's Hospital, first in the form of a 588-bedded institution, is now in the process of being enlarged to 450 beds on its present site with a provision for additional beds at a new site at Thomson Road. The tuberculosis scheme envisaged two sanatoria; these will be combined into a 1,100/1,200 single institution. The enormous out-patient service demand has created a special problem necessitating the creation of a series of urban and rural units to relieve the pressure on the hospital clinics, apart from the special rural child and maternity clinic scheme which is already in process of development. And finally the building costs shown in the original scheme have increased very considerably indeed since 1948 although the 1951 peak in this respect has been passed, and they are happily on the downward trend.

15. So far the following projects under the Plan have been completed or are in process of completion:—

(*a*) expansion and modernization of the General Hospital with a new Nurses Home and a new Out-patient Division and a most up-to-date Blood Transfusion Wing; a new surgical block with operating theatres and wards attached;

(*b*) a complete new Wing to the Kandang Kerbau Women's Diseases Hospital;

(*c*) expansion and modernization of the Leprosarium from some 300 to 1,100 beds;

(*d*) a new Base Medical Stores and Manufactory;

(*e*) five new Rural Health Centres;

(*f*) increase in the Children's Orthopædic Hospital from 80 to 120 beds;

(*g*) considerable expansion and improvement in the anti-malarial scheme;

(*h*) expansion of facilities and training schemes at Tan Tock Seng Tuberculosis Hospital.

Funds from the Colonial Development and Welfare Scheme have been made available for (*c*) and (*e*) and will be available for the Urban Health Centre.

16. The year 1953 created another health record for the Colony in many directions, not the least being the continued complete freedom from malaria of an area particularly prone to this disease, from which almost all the inhabitants suffered in 1945. No case occurred from within the borders of the Island, but that the danger is ever present was demonstrated by the odd small explosive outbreak, crushed at once, due to infected imported labour. There seems to be an impression in some quarters that because this condition has been eliminated *temporarily*, anti-malarial work can cease. No more dangerous or ignorant assumption could be so entertained. Cessation of anti-malarial control would lead at once and without any doubt to a widespread and most devastating outbreak of malaria. Both the Singapore Public Health Conference and the Federation of Malaya Medical Advisory Board have stressed this danger in no uncertain terms.

17. While the Colony Birth Rate rose to the phenomenal figure of 48.68, the Death Rate fell to 10.31 and the Infant Mortality Rate to 67.04. The following tables clearly demonstrate the improvement in the vital statistics over the post-war decade:—

——	1939	1944 (approximate)	1947	1950	1953
Infant Mortality Rate ..	130.4	285	87.3	82.2	67.04
Death Rate	21	51	13.3	12.1	10.31
Population (Mid-year) ..	727,564	860,000	938,144 (census)	1,015,453	1,120,777
Birth Rate	45	37	46	46	48.68
Maternal Mortality Rate ..	4.0	7.0	2.9	1.8	1.2

RATE PER MILLION

——	1939/41 Average	1944 (approx.)	1947	1950	1953
Beri-beri	873	7,774	420	242	115
Infantile Convulsions ..	2,393	5,262	1,603	1,343	961
Pulmonary Tuberculosis ..	2,288	3,850	1,550	1,193	724
Fever	1,547	6,447	1,274	806	323

18. No epidemic manifestation occurred and no case of any of the dangerous communicable diseases was reported.

19. The remarkable Birth Rate and the rapid growth of the population continue to be a predominating factor, which must in turn lead to a particularly virile and young population with a constantly high Birth Rate. This must continue to be accommodated in overcrowded cubicles and tenements for a long time to come, however satisfactory the progress figures in new homes

and housing schemes. So it is impossible at the moment to develop domiciliary midwifery, as it is understood in Great Britain, in our urban areas. Thus more hospitalization and more clinic control is the only answer for this section of the people for the time being. It is remarkable in fact that the Infant Mortality Rate continues to decrease under such conditions. All this means a steady progress on the scheme which has been evolved for Singapore so successfully so far. What is being contemplated now, in addition, is the encouragement of home delivery in that comparatively small better class division which does live in houses capable of affording some privacy (plus private nursing homes) and in the introduction of a home follow-up service which will strictly limit the stay in hospital. The City Health Division however covers some 3,000 births.

20. Our Maternity Hospital dealt with about 18,000 deliveries in its 200 beds during the year and this figure means more or less half the total urban births as only some 500 abnormal cases entered from the rural areas. When the new Wing to this Hospital now in process of construction has been completed and the present structure redesigned the undue pressure in the existing accommodation will of course be considerably relieved.

21. Our rural areas present quite a different problem and one of the finest domiciliary midwifery services in the East is being rapidly developed there. In 1953, a total of 8,192 actual deliveries took place in the home under expert attention out of 15,242 births and almost all the rest received early attention by a trained visiting staff.

22. Eventually the developing scheme will provide a 100 per cent rural home delivery service through its seven rural health centres and its ninety subsidiary nurse/midwife centres with a complete ante and post natal service. At the moment five of these health centres exist with thirty-nine subsidiary centres, the majority of the latter still in unsatisfactory quarters. This question of quarters in the rural areas with their 310,000 people present the real problem as it can hardly be expected that rural staff can be retained today unless it is reasonably housed. In the urban area a very large Urban Health Centre costing some $1\frac{1}{2}$ million is contemplated as a combined Government, City, and University project. This, in addition to infant welfare, will include the school medical and dental service headquarters, and a health training centre for Singapore and the surrounding territories.

23. An outstanding problem in Singapore today and one only second to child welfare in importance is that connected with out-patients. Here this development is quite different to that in the United Kingdom and elsewhere in that the public has created and demands a direct patient-clinic service without the intervention of the private general medical practitioner. In consequence the Government has had to provide a National Health Out-patient Service in its hospital divisions on a very considerable and a very rapidly expanding scale indeed. This is obvious from the following figures:—

OUT-PATIENT ATTENDANCES

Immediately pre-war	87,447
1947	305,138
1949	461,238
1951	612,097
1953	957,481

24. The only additional accommodation in this respect to that pre-war is the Rotary Club out-patient division at Tan Tock Seng Tuberculosis Hospital donated in 1949 and the out-patient division opened up at the General

Hospital in 1953. Both these are finding it increasingly difficult to deal with the popular demand. Of course the latter was designed with the intention of having a 'filter' in a new hospital centre at Thomson Road and with the present General Hospital on half the scale of the institution now being built up: the former on the basis of a second sanatorium elsewhere. So the result is not surprising. What is remarkable is the rapid and enormous increase in the popularity of this service. It was never thought for a moment even three years ago that the demand in this direction would have reached its present proportions for some years to come. So the Medical Plan has had to be modified in this respect to provide for a dispensary out-patient division at the General and a few cottage hospitals: these may well assume a priority position. The original idea was to provide two or three district hospitals and clinics to cope with this problem. Now and particularly as an economy measure the new out-patient divisions will be combined with beds and a small resident staff. So this proposal will relieve the growing pressure on the expanding central in-patient institutions as well as covering out-patients.

25. Both the in-patient and the out-patient problem is particularly concerned today with the difficult question of orthopædic work, and cripples and the handicapped—especially in the young. Not only has this question become one of major importance from the point of view of long term bed occupation, but equally so from that of preventing the growth of a large reservoir of useless citizens who will become a burden and a serious charge on the State. While the Orthopædic Division under Professor Cameron has developed to significant proportions already, future development in this field will have to be undertaken only with discretion and a proper sense of proportion maintained, if the money available is to be distributed properly over all the increasing demands which must be met for the advancing medical scheme. The Almoner and the Physiotherapist must play a vital part in the Service in this connection, and these sections are being steadily developed year by year to meet the need. The steady flow of cases from endemic infantile paralysis apart from the recurring epidemics of this disastrous and crippling condition stress these facts sufficiently. When the very little attention which was paid to this form of medical practice until very recent times is kept in mind, it will be realized what an important and significant advance has been made by the Government even with our present resources in this important division of modern medical work. This form of work also has a very significant relation to the problem of the *care of the hospital patient from the point of view of the best use of the hospital beds available,* and it is interesting to note the numbers in the latest England and Wales annual review in this connection. There the fact is stressed that in Manchester 20,000 more in-patients were treated in 1952 than in 1950 without any increase in actual beds. In Singapore the turnover in our acute institutions per bed has been almost doubled over the post-war period. The Professor of Surgery, Professor Mekie, noted in the 1951 Report that 'it is readily seen from the figures published in successive annual reports that there has been a terrifying increase in the actual amount of work carried out in the hospitals of Singapore. The ever increasing numbers have been achieved without corresponding increase in staff as compared with the pre-war establishment.'

26. Two other conditions require special consideration in view of the newspaper and other comment which has occurred over past months. These are *tuberculosis and thoracic surgery,* and *malignant disease.* These are very important factors indeed, and this fact is kept constantly in mind in our future medical planning. It must be remembered, however, that the Government has to cover the whole medical and health field, and that the backlog due

to the policy of previous decades—a policy due equally to the public and to the medical outlook of those times—has created the necessity for an enormous and most expensive present day advance. Only now are we getting over the preliminary stages of many essential developments. In consequence, apart from the difficulties of getting adequate accommodation and staff for a too rapid advancement in one or two directions, available resources have to be spread out intelligently. And in such a field as malignant disease, new forms of treatment necessarily indicate caution in the provision of a profusion of very expensive equipment. A very considerable development has taken place in all these spheres of activity, however, apart from what is planned for the immediate future. The attack on tuberculosis can be said to be almost entirely a post-war development in Singapore, and the present 450-bedded institution is about to be rapidly expanded to 1,200 beds. The expansion in the present excellent out-patient facilities for this disease will march side by side with this advance. During 1953 1,803 tuberculosis cases were treated as in-patients and some 6,000 as out-patients, a considerable increase on any previous year. In fact some 17,000 cases have passed through the centre since 1946. These figures together with the ancillary almoner and health visitor, the contact and domiciliary treatment schemes, and the school tuberculosis service indicate that Government has developed a formidable tuberculosis service already. Almost $4 million went on the Government tuberculosis service in 1953 in one way or another, or one-fifth of the total annually recurrent medical and health expenditure. The question of developing a separate thoracic surgery unit has been under constant study, but the fact is that the local surgical experts consider that the time is not yet ripe for this within the advancing medical scheme: that what is required in this connection at the moment can be adequately covered by the existing surgical service which is being gradually built up.

27. The provision for an adequate service for malignant disease was worked out most carefully by the late Senior Radiologist to the Government, Dr. Winchester, some three years ago and this scheme is now complete except for one deep X-ray set which his successor considered should not be acquired until further study had indicated the most satisfactory instrument. In the meantime the provision of radio-active forms of treatment has been receiving attention, and while it is thought to be too early as yet to finalize this issue certain material in this field has been obtained. Action is to proceed very shortly in the laboratory and other 'safety' accommodation which is so essential to progress in this way. The arrival of a specially trained radiotherapist has made an advance in modern methods of treatment of malignant disease more satisfactory. It must be explained that properly trained experts are as essential in this field as apparatus if disaster is to be avoided.

28. *Mental disease* continued to be an outstanding problem in that for the first time over the post-war period the 1,800 beds provided, in what must be one of the most modern institutions for the purpose in the East and one which compares favourably with many in the West, were exceeded, a total of 1,814 in-patients being recorded by the end of the year. The same institution housed over 2,000 cases before the war but this meant serious overcrowding. The Medical Plan includes additional accommodation not only for ordinary cases but for the criminally insane, and a separate building for the mentally deficient. Unfortunately, other more urgent priorities have necessitated the postponement of these schemes for the time being. More urgent perhaps is the question of nursing the insane and a lot of attention has

been centred on this problem over the last two years with the result that today the attention given by the trained attendant staff has been improved out of all recognition. More trained male and female nurses is of course, the ultimate aim. An attendant strike, fortunately of short duration, added to our administrative difficulties in this connection for one week from 30th January, 1953. Rehabilitation of the mentally disabled is receiving increasing attention here as elsewhere. This factor must become an outstanding one in any mental institution.

29. The control of *leprosy* received a lot of further attention during the year as the numbers under treatment and observation is now some 1,500 as compared to little more than 300 some years ago—a similar figure to the one pre-war. The accommodation in our Settlement which aims at 'a community within a community and without bars' is being built up rapidly for over 1,100 persons. Some 500 of the present number are treated mainly as out-patients outside the Settlement and this figure should steadily increase from year to year as more and more become non-infectious. At this stage constant observation of this type of case is essential to prevent recurrence of infectivity. The main difficulties have been administrative so far, due to the very serious overcrowding which has occurred in the Settlement and so the lack of accommodation for the occupational therapy measures so essential in rehabilitation in a community which unduly fears and ostracises the unfortunate sufferer from this condition. It is considered that the disease is now reasonably well controlled in Singapore. That the general advance in our health organization is bringing forward more cases at an earlier and more curable stage is no doubt an important contribution, but it poses a problem of numbers which bids fair to be a formidable one, but which has been, and is being, vigorously tackled. Following a meeting of leprologists and phthisiologists in London last September, Dr. Grove White, the Medical Superintendent, and Professor Hale of the University of Malaya, are carrying out lepromin and tuberculin tests and X-ray in all leprosy patients prior to a survey of contacts in due course.

30. *Diphtheria* continues to be one of our most difficult public health problems in that while 1953 saw a considerable drop in cases, the public still resists the 'two inoculation' campaign. In consequence, an extensive and sustained propaganda drive is to be repeated early in the new year in an effort to really control this serious death-dealing condition in children. The difficulties of this form of propaganda are clearly demonstrated by the trouble which was created during the year in several rural areas of considerable population by widespread rumours against such inoculation, and against blood tests, which alleged that all these were being undertaken to reduce the birth rate, that is, to cause sterility. Attendances at a number of our child welfare clinics suffered considerably for some three months in consequence. The trouble was overcome, but its effects were serious for some time. The formation of a Health Education Council is now in hand, and the activities of such a body should prove invaluable in reducing such suspicion and ignorance to a minimum. It is clear, however, that even in such an enlightened area as Singapore prejudice and ignorance still continue to play important parts in disease control and the Infant Mortality Rate. That our success has been so marked and steadily progressive over the post-war years in spite of these handicaps is what is so surprising. The work of the Public Relations Officer

and his staff has played a very important part in this propaganda field. Cases from diphtheria rose from an average of 220 per annum to 376 in 1951 and 427 in 1952. The number in 1953 was 332.

31. *Enteric Fever* continued to be a condition of minor significance, only 91 cases being recorded as against 117 in 1952. No epidemic manifestation has been observed since the December 1952 outbreak resulting in 84 cases.

32. *Acute anterior poliomyelitis* was less prevalent in 1953 than previouly with forty-one cases. The last epidemic outbreak occurred in November/December 1951. As these explosions have occurred at approximately thirty-month intervals since the serious 1945/46 outbreak, another was expected in 1952. Fortunately this did not eventuate.*

*The 1952 Report of the Ministry of Health, London, comments as follows:—

'In spite of the vast amount of work which has been done on poliomyelitis our knowledge of this disease is still incomplete in several important respects though laborious investigation is slowly filling the gaps. Happily, we do not require complete knowledge of an infectious disease for the exercise of a considerable measure of control over its spread. Certain simple general principles can enable us to lay down a course of action which is usually effective. Two of the most important of these are the isolation of the patient and the control of those individuals who have been in contact with him during the infectious stages of the illness. The degree of isolation to which patients and contacts may have to submit varies a good deal with circumstances. In poliomyelitis the relevant circumstances which have to be taken into account are the ages of the patients and contacts and the amount of infection present in the locality.

It has been noted time and again that outbreaks of poliomyelitis tend to occur in small communities such as families, nursery schools, school classes or residential hostels. When an outbreak occurs in a day school it is usually the youngest children who are most affected by the virus. It is therefore logical as well as economical in effort to concentrate upon them the preventive measures available. The measures most likely to effect control of the outbreak are the two general measures to which reference has already been made, isolation of the patients and exclusion of their contacts from school for some three weeks.

Unfortunately, in our present state of incomplete knowledge this kind of evasive action can be taken only when the disease has become manifest. Theoretically, a much more satisfactory procedure would be to immunize the population in much the same way as it was formerly immunized against small-pox, and, more recently, against diphtheria, so that the disease does not appear at all.

There are two ways in which immunity may be conferred upon a population at risk, namely, to administer a preparation which contains the immunizing substance thus conferring on its members what is known as passive immunity, or to administer a preparation which induces the subjects to generate their own immunizing substances (active immunity). The first method is useful in tiding over an emergency but the protection does not persist for very long, though it is obtained at once. By the second method the development of protection takes some time but it lasts longer and it has the further advantage that the body's capacity for generating the protective substances is much enhanced so that immunity may be sustained in the future by smaller doses of the exciting substances given at appropriate times.

In poliomyelitis it is probable that passive immunization can be provided by the administration of a protein substance known as gamma globulin obtained from human blood or placenta. As a means of widespread protection, however, such as we have to envisage when considering measures applicable to large groups of the population, its scarcity, difficulty of preparation, and high cost militate against its usefulness. A more hopeful and practicable proposition would be to attempt the active immunization of the susceptible section of the community by suitable means. But this, it must be repeated, is not yet possible. Such a technique of active immunization would involve the isolation of the virus, and its subsequent modification so that its harmful potentialities are lost while its immunizing properties are preserved. Much work on these aspects of the problem is being undertaken in this country and in the United States of America and there is even now the promise that an efficient immunizing preparation against the poliomyelitis virus may emerge within the next few years.'

33. While *Scrub typhus* is not ordinarily of much consequence locally in that the few cases reported are scattered and appear to lead to no explosive manifestation last September rickettsiæ were recovered from mites infesting rats caught from a circumscribed area at Changi leading to nine cases. Complete spraying with dieldrin and a concentrated war on rats with 'Sorexa' dealt successfully with the problem.

34. The very successful *voluntary vaccination campaign* carried out in late 1952 whereby over 70 per cent of the local population was covered only necessitated normal infant and quarantine measures in this connection during 1953. Singapore will be free from any serious danger from this condition for some time to come. Here again as in the case of the anti-diphtheria campaign propaganda and the Public Relations staff have played a significant part.

35. The *Blood Transfusion Service* moved into the new wing of the out-patient division specially designed for it towards the middle of the year and it can now be said that we have a most up-to-date and well equipped organization for this important purpose. While the donor service continued its steady improvement in that 6,515 came forward as compared to 4,551 in 1952 and 996 in 1947, with a welcome increase of Chinese donors, the demand for blood shows no signs of abating. It is interesting to note that the same remark is made in the latest report from the Ministry of Health in England and Wales which goes on to say that 'a disquieting feature of the increased demand is that part of it, at least, seems to be unnecessary. A valuable remedy obtained from a source which is limited should be used with great discretion and only for those conditions in which no alternative therapy is indicated. Some restraint is obviously called for in the use of whole blood as a universal remedy.'

36. While no one needing it has ever been refused a blood transfusion so far the popular prejudice against the giving of blood, particularly amongst the Chinese, continues to be a serious difficulty.

37. The action taken to prevent complications and accidents, to eliminate risk from blood transfusion in the completely redesigned service, and to obtain more information in regard to the complicated technique now so necessary is timely.

38. All visiting experts have described our *venereal diseases* scheme as one of the best of its kind anywhere with its hospitalization and clinics, its follow-up technique through trained health visitors, and its travelling rural dispensary treatment unit. While attendances have continued to increase, particularly on the female side, syphilis has continued its fall, a decline which applies also to congenital cases. The prevention of syphilis is of course a matter of early diagnosis and treatment.

39. While the incidence of gonorrhœa remains the same non-gonococcal urethritis continues to increase. The latter condition is still not fully understood and is a puzzle here as elsewhere. Its venereal significance cannot be ignored, however, and it is receiving increasing attention from our Advisory Committee in consequence.

40. *Dental Health* is an increasingly pressing problem in that the school dental service only started in 1949 and has been steadily but slowly built up. Prior to that year the Government only provided dental treatment through the dental clinic at the General Hospital which is a joint treatment and teaching institution. This is to be doubled in size with a considerable clinic and other facilities in an Urban Health Centre. Dental nurses are being added to the school service which will provide further clinics in the schools.

The Colony water supply is to be fluorinated, and this may be a valuable contribution. One of the present difficulties is the small number of properly qualified practitioners on the register as the rest can give little in the way of conservative treatment—one of the relics of the Japanese occupation.

41. No medical organization on a national basis can operate without a *preventive health service* and particularly in an area like Singapore. Yet this division continues to be the Cinderella of the Service, in large part due to the lack of sufficient staff and especially trained staff. In consequence up to the present the school medical service, the rural health service and the quarantine service have had to work on a very minimum basis indeed in this respect. In fact at the moment only six trained health officers are available to these divisions excluding the Director and his Deputy. If the present high standard of health is to be maintained with the rapidly increasing commitments arising in this field of work the attraction of more trained personnel for the purpose is imperative. Malaria is absent but this happy state of affairs can only be obtained by constant and increasing vigilance. The increasing use of air services and the enhanced speed of both air and sea transport: Singapore's unique passenger transit position; the rapid increase in the school and child populations: all these and similar factors demand an ever wider and expanding network of control. There is however a tendency amongst a large percentage of the population to accept these benefits as something provided by providence and that no exertion on their part is further necessary. The promotion of personal health and its maintenance is largely an individual matter. There is therefore considerable need today to educate the public in this respect. A Health Education Council is to be formed soon. The Health Department has recently recruited a Health Education Officer and in one district, namely, the Serangoon District, health education on a community basis has been instituted and is proceeding satisfactorily.

42. *Civil Medical Defence* continued to receive close attention throughout the year. The Emergency Medical Plan, which calls for the formation of a number of Casualty Hospital Units, the establishment of Static First Aid Posts, the creation of Mobile First Aid Units and the expansion of the Ancillary Services, was re-drafted and minor amendments were made.

43. At the close of the year, arrangements were in hand to hold a Civil Medical Defence Study, the objects of which are—

(*a*) to study the application of the Civil Emergency Medical Scheme on Singapore Island;

(*b*) to consider the implications of atomic, biological and chemical warfare against Singapore.

It is intended that this Study should be attended by the Senior Officers of the Medical Department, members of the Faculty of Medicine, University of Malaya, and representatives from other Government departments. The local Authorities, and the Armed Forces, will also be invited to attend.

44. Recruiting for the Singapore Hospital Reserve, which is a voluntary body formed under the Civil Defence—Singapore Hospital Reserve—Formation Rules, 1952, was on the whole disappointing, the response, particularly from women, being poor. The strength as at 31st December, 1953 was 450 of which 288 are Nursing Auxiliaries. Of these over 100 are undergoing active training in the wards of the General Hospital, and it is hoped that the Reserve will be gradually built up.

45. Considerable quantities of medical stores and equipment were ordered and a steady stream of reserve stores and equipment arrived during the

year. These are segregated in three emergency medical stores, steps being taken to ensure that the drugs and chemicals and other items liable to deteriorate are kept turned over. The X-ray and bacteriological services are fully equipped to meet the planned expansion of their respective services in an emergency, while provision has been made to permit the opening of a second Blood Transfusion Centre if such should prove necessary. In addition to the existing medical facilities, reserves of stores and equipment have been made, subject to certain local purchases, to open four Casualty Hospital Units, i.e. 1,800 beds and eight surgical theatres. In addition light equipment has been provided for fourteen Mobile Surgical Teams while reserves are also held to equip twenty Static First Aid Posts and thirty Mobile First Aid Units.

46. *Statutory Boards.*—The Director was an *ex-officio* President of the Medical Council of the Colony of Singapore and the Federation of Malaya and Registrar of Medical Practitioners until new Ordinances created separate Councils for each territory; Chairman and Registrar of the Dental Board, Singapore; Chairman of the Hospitals Board; Chairman of the Pharmacy Board, Singapore; Chairman of the Nursing Board, Singapore; Chairman of the Ambulance Committee; Chairman of the Public Health Conference; Chairman and later Director of the St. John Ambulance Association; a Deputy Chairman of the St. John Council; Deputy President of the Singapore Branch of the British Red Cross Society; a member of the Tan Tock Seng Hospital Management Committee; a member of the Committee of the Singapore Association for the Blind, and a member of the Social Welfare Council. He was a Member of the Legislative Council throughout the year, and Chairman of the following advisory committees which were formed to deal with specific problems: venereal disease, blood transfusion, tuberculosis, nutrition and U.N.I.C.E.F. He was also a member of the Council of the University of Malaya.

47. Voluntary assistance to the Medical Services by the following societies and groups of citizens continued on an ever increasing tempo and is gratefully recorded:—

> The Ladies Diversional Therapy Unit, the Leprosy Welfare Committee, the Rotary Club of Singapore, the Singapore Anti-Tuberculosis Association, the Tuberculosis Treatment Allowance Advisory Committee, the Blood Transfusion Committee, the St. John Ambulance Association and Brigade, the Singapore Branch of the British Red Cross Society, the St. Andrew's Mission Hospital for Children, and the Singapore Association for the Blind.

48. The crippled children's home of forty beds sponsored by the Singapore Branch of the British Red Cross Society from money contributed by all races was opened by Lady Limerick on 3rd February, 1953 in the presence of His Excellency the Governor. In December 1952 the Rotary Club of Singapore started work on a community centre and school for the Leprosy Settlement. This second medical scheme sponsored by Rotary was officially opened by His Excellency on 9th March, 1953. The first of Rotary's projects was of course the fine Tuberculosis Clinic opened at Tan Tock Seng Hospital by Sir Franklin Gimson in April 1949. In addition Rotary has supplied one of the travelling dispensaries in use in the Rural Area of the Colony.

49. The Maternity Section of the Kwong Wai Siu Free Hospital was modernized during the year to take in 58 maternity beds. The total bed strength now stands at 400. A Tuberculosis Home Association has been formed to consider furnishing assistance to chronic and destitute persons suffering from tuberculosis with nowhere to go—a very important problem.

TOTAL NUMBER OF OFFICERS AUTHORIZED AND AVAILABLE 1ST JANUARY, 1954

———	Estimates 1954	Permanent	Short Contract and Temporary	Gone or going on long leave (including study)	Total to be available
A.—Administration					
Director	1	1	..	..	1
Deputy Director ..	1	1	..	..	1
Chief Health Officer ..	1	1 (*acting*)	..	..	1
Chief Medical Officer ..	1	1	..	..	1
Chief Dental Officer ..	1	1	..	..	1
Medical Superintendent, Woodbridge Hospital ..	1	1	..	..	1
Medical Superintendent, Kandang Kerbau Maternity Hospital	1	1 (*acting*)	..	..	1
Medical Superintendent, Tan Tock Seng Hospital ..	1	..	..	..	..
Deputy Chief Health Officer	1	..	..	..	..
Deputy Medical Superintendent, Woodbridge Hospital	1	..	..	..	..
Health Officer i/c Schools ..	1	1	..	..	1
Medical Officer i/c Outpatients Department ..	1	1 (acting)	..	..	1
Principal Matron ..	1	1	..	..	1
B.—Hospital Division					
Specialist Officers, Grade 'A'	5	4 (1*acting*)	..	1	4
Specialist Officers, Grade 'B'	18	10(2*acting*)	2	..	14
Medical Officers (excluding Housemen)	81	46	29	6	69
Housemen	36	..	26	..	26
Matrons	9	6 (4*acting*)	..	2	8
Specialist Sisters ..	46	23	13	1	35
Sisters Expatriate ..	97	29	26	9	80
Sisters, Locally Appointed ..		34			
*Nurses	574	435	78	1	512
Hospital Assistants ..	220	170	34	10	194
Qualified Midwives ..	52	24	18	..	42
Dental Staff (including Housemen)	20	8	11	..	19
Pharmaceutical Chemists ..	2	..	2	1	1
Pharmacists	9	4	..	1	3
Laboratory Assistants ..	32	23	..	..	23
Male Nurses	7	5	..	..	5
C.—Health Division					
Health Officers	24	6	15	..	21
Health Education Officer ..	1	..	1	..	1
Supervisor of Public Health Works	2	1	1	..	2
Chief Sanitary Inspector ..	1	1	..	..	1
Sanitary Inspectors ..	20	15	2	..	17
Matrons	2	2	..	..	2
Health Sisters	10	3	6	1	8
Health Nurses	41	6	20	..	26
Hospital Assistants ..	17	8	3	..	11
Qualified Midwives ..	47	22	18	..	40

Note:—Excluding one post of A.D.M.S. Civil Defence for two years only.
*Excludes 115 Assistant nurses.

CHAPTER TWO

LEGISLATION

50. It has been pointed out in previous reports that the initiation, drafting and passage through the Legislature of any new legislation or even amendment of existing legislation is inevitably a slow and prolonged process, and in consequence much of the legislative action referred to in the 1952 Annual Report continued in 1953. However the following measures were finalized and became law during the year under review:—

The Medical Registration Ordinance, 1953

51. This Ordinance largely reproduces the provisions of the old Medical Registration Ordinance (Chapter 67), but includes provisions similar to those of the United Kingdom Medical Act, 1950 relating to provisional registration. The consequence of this is that medical practitioners will not be granted full registration in the absence of proof of practical experience. Prior to the introduction of the new Ordinance there was one Medical Council for the Colony of Singapore and the Federation of Malaya. In November 1952, the Federation of Malaya Medical Registration Ordinance, 1952 (No. 69 of 1952) became law in that territory. The Colony legislation in this respect which came into force on the 27th June, 1953 follows very closely the Federation Ordinance for the reason that proper reciprocity and control can be exercised within the two territories which are adjacent to each other and have so much in common. While the intention of this new legislation is to create separate medical councils in Singapore and the Federation of Malaya, the two medical councils comprise in the main the same personnel and in consequence the closest harmony can be maintained.

52. The salient features of the new Colony Ordinance are as follows:—

The constitution of the Council has been enlarged. There is provision for nomination to the Council by the University of Malaya of three registered medical practitioners. The election of registered medical practitioners up to six in the Colony and three in the Federation is an entirely new idea. Hitherto this representation has been by nomination of the Malaya Branch of the British Medical Association and the Alumni Association of the King Edward VII College of Medicine. The President of the Council will now be elected for a term of three years by members of the Council from among its members. The sections in the Ordinance relating to qualification for registration follow substantially the provisions of the United Kingdom Medical Act, 1950.

The Hospitals Board (Amendment) Ordinance, 1953

53. The main purpose of this Ordinance is to increase the University of Malaya representation on the Hospitals Board and to enable the Board within its budget to transfer items of expenditure from one head to another at its discretion.

54. The introduction of the above Ordinance is the result of prolonged discussions by an *ad hoc* committee which was established for the purpose of arriving at an agreed solution between the Government on the one hand and the University of Malaya on the other regarding the administration of the Teaching Hospitals (General and Kandang Kerbau) in Singapore including the appointment and payment of staff.

55. Legislation being finalized or still under consideration at the close of the year was as follows:—

The Medicines (Advertisement and Sale) Ordinance.
The Poisons (Amendment) Ordinance.
The Registration of Pharmacists (Amendment) Ordinance.
The Nursing Homes and Maternity Homes Ordinance.
The Midwives (Amendment) Ordinance.
The Mental Deficiency Ordinance.
The Therapeutic Substances Ordinance.
The Mental Disorders and Treatment (Amendment) Ordinance.
The Rules under the Sale of Food and Drugs Ordinance.

CHAPTER THREE

STAFF WELFARE

56. The Chief Personnel and Welfare Officer to the Department of Labour reports as follows:—

(i) One Assistant Personnel and Welfare Officer continues to carry out personnel and welfare functions in the Government Health Branch besides being the Honorary Secretary/Treasurer of the labourers' Co-operative Credit Society Limited. He is accorded easy access to the senior officers, and to the large labour force in the Department. Regular visits are made to places of work and labour lines. On-the-spot investigations and advice have improved better employer/employee relations, and have minimised the old practice of petitioning the Head of Department on minor complaints and petty quarrels.

(ii) The Government Health Division Co-operative Society continues to make satisfactory progress. Although thirty-six members have withdrawn due to reaching the age limit, fifty-seven new members have joined. It is a matter for satisfaction that on the one hand the membership figures have been maintained and that on the other that the thirty-six members have been enabled to benefit by additional provision for retirement.

(iii) A 4 per cent Dividend was paid to all members in time for the Deepavali Festival and this timely payment does much to help to make the Society attractive to the labourers. It is intended to maintain the practice.

(iv) No cases of indebtedness among the labourers came to light during the year. Thus they have maintained their record of providence referred to in last year's report. It should be said however that this does not mean that no indebtedness exists: it cannot be of serious moment and the work of the Society, allied to the labourers' own efforts, help to maintain a very satisfactory state of affairs in this report.

(v) The policy of ceasing to employ labourers on attaining the age limit referred to above has been criticised in some quarters. The critics, however, tend to overlook the fact that an employer must preserve a balanced labour force with an even age distribution, and if all over age men are retained there can be no scope for young men joining the Department. It can be said that only in times of acute labour shortage is there any justification for acting otherwise, and no such state of affairs exists at present.

(vi) The Society's position is as follows:—

	Year ended 31st Dec., 1953	*Year ended 31st Dec., 1952*
	$ c.	$ c.
Post Office Savings Account ...	8,130 33	7,932 08
Chartered Bank	11,381 03	12,890 74
Cash in transit	2,778 30	2,519 34
Investments	40,506 25	40,506 25
Loans outstanding	11,180 00	7,472 00
Total Credit Balances ...	73,975 91	71,320 41
Membership	417	396
Total staff eligible	711	679

57. The Nurses Hostel at the General Hospital which has accommodation for 200 probationer nurses was opened on the 29th July, 1953. The laying of the foundation stone of the new Wing at the Kandang Kerbau Women's Hospital by His Excellency the Governor, Sir John Nicoll, K.C.M.G., on 6th October, 1953, means that further accommodation for staff of all kinds will soon be available there.

58. Master Plans were being finalized by the end of the year for the General and Tan Tock Seng Tuberculosis Hospitals. These include quarters of a most up-to-date kind for staff of the various categories employed. Action continued in the provision of suitable accommodation at the new Rural Health Centres and will be further implemented as the rural health and medical schemes outlined in the Report develop. Adequate staff accommodation is an essential in any rural development.

59. The Senior Hospitals Staff Committee met regularly and reviewed constantly matters affecting the efficient running of the Government hospitals. The Department's Interim Joint Council held various meetings with the Medical Directorate at which the Singapore Medical Services Union was fully represented.

60. The Nurses Representative Council continued to hold meetings at various times during the year. Problems pertaining to the female side of the staff were discussed at these meetings, and representations were forwarded to the more formal meetings of the Interim Joint Council.

61. A concert held by members of the General Hospital Welfare Committee in which members of the divisions of the staff took part was very successful. Important sports meetings were held in the latter part of the year which while being thoroughly enjoyed, served the essential function of promoting co-ordination and co-operation between the various grades and divisions.

62. The Mental Hospital Attendants came out on strike for one week in early 1953 due to a breakdown in negotiations in respect of certain conditions of service. A satisfactory early compromise was however soon effected.

63. The following members of the Department proceeded overseas on study leave: Dr. Wong Hin Sun, Dr. B. E. G. D'Bras, Dr. (Miss) Oon Chiew Seng, Mr. Ong Soon Lim, Mr. K. Vaithilingam, Che Wan Ismail bin Haji Wan Mahmood, Mr. D. Marimuthu, Miss Enid Wong, Mrs. Ira Louise Aeria, Miss Chan Shew Kue, Mr. S. Kanagalingam, Miss Wong Kit Loke.

64. Two gold medals presented by the Singapore Medical Services Union to the best all-round nurse completing the nurse's course were awarded to Miss Eileen Luis and Miss K. Jumabhoy.

CORRIGENDUM

Graphs appearing on pages—

165 (Births and Deaths—1940–53)
166 (Beri-Beri Death Rates—1900 onwards)
167 (Crude Birth and Death Rates—1920 onwards)
168 (Infant Mortality Rates—1920 onwards)
181 (Infant Mortality Rates by Race—1931 onwards)
183 (Tuberculosis Death Rates—1920 onwards)

should have appeared in Chapter Four instead of in Chapter Twenty-two.

CHAPTER FOUR

VITAL STATISTICS

POPULATION

COLONY OF SINGAPORE

(Excluding Cocos and Keeling Islands)

65. The present population figure for mid-year 1953 is based on the actual 1947 census figure plus migrational surplus plus excess births over deaths since then. On this calculation the estimate is 1,120,777.

66. Details by race since 1911 are as follows:—

Year	Chinese	Malays	Indians	Europeans	Eurasians	Others	Total
1911 (Census) ..	219,577	41,806	27,755	not	avail	able	303,321
1921 (Census) ..	315,151	53,595	32,314	6,145	5,346	5,717	418,358
1931 (Census) ..	418,640	65,014	50,811	8,082	6,903	8,295	557,745
1947 (Census) ..	729,473	113,803	68,967	9,279	9,110	7,512	938,144
1948 (Mid-year) ..	749,591	116,364	69,474	9,660	9,354	7,599	962,042
1949 (Mid-year) ..	761,962	119,623	70,749	10,923	9,716	7,845	980,818
1950 (Mid-year) ..	789,160	123,624	72,467	11,504	10,093	8,605	1,015,453
1951 (Mid-year) ..	806,690	127,063	75,601	12,785	10,451	9,343	1,041,933
1952 (Mid-year) ..	830,079	131,664	80,096	14,565	10,820	9,931	1,077,155
1953 (Mid-year) ..	859,201	136,887	87,213	15,811	11,130	10,535	1,120,777

67. Attention is again drawn to the increase in Singapore's population. In the 21-year period from 1911 to 1931 the increase was some 83 per cent when the cause was due to large scale immigration from India and China. Since 1931 the overall increase is about 91 per cent due in the main to an increasing natural (births over deaths) cause. This natural increase has become phenomenal over the post-war period and has in fact been masked over recent years by a balance of emigration over immigration. In 1931 the ratio of females to males was 584 to 1,000. It is now 877 to 1,000. The intense overcrowding, the very young ages at which women marry and the increase in the young state of the pupulation are the factors of real significance in present and future local population trends.

68. It will be observed from a following table that while the ages of mothers range from 12 years to more than 45 years, no less than 8,348 babies out of a total of 54,562, i.e. more than 15 per cent, were born to women under 21 years. What effect this must have in contributing to our comparatively high infant mortality rate as judged by Western standards it is difficult to assess. Indeed, the fact that the Malays who have the highest infant mortality rate (124.38 against the 67.04 for all races), gave birth to 2,528 out of a total of 7,276 deliveries, i.e. nearly 35 per cent, in this age group (12–20) of adolescence and near childhood, would suggest that pregnancy in these years carries an added risk of death to the new-born infant. In fact, motherhood in this age-group has increased among Malays from 32 per cent in 1952 to 35 per cent during the current year.

BIRTH AND BIRTH RATES

—	1931		1947		1952		1953	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chinese ..	15,993	37.85	33,629	46.20	39,088	47.09	41,653	48.48
Malays ..	2,862	43.69	5,473	47.73	6,858	52.09	7,276	53.15
Indians ..	1,020	19.64	3,087	43.30	3,672	45.84	3,956	45.36
Europeans ..	169	20.55	312	35.79	757	51.97	853	53.95
Eurasians ..	199	28.53	359	39.84	359	33.18	325	29.20
Others ..	227	29.09	185	28.27	460	46.32	499	47.37
Unknown ..	..	..	..	..	2	..	..	..
Total ..	20,470	36.37	43,045	45.89	51,196	47.53	54,562	48.68
Males ..	10,753	..	22,152	..	26,342	..	28,179	..
Females ..	9,717	..	20,893	..	24,854	..	26,383	..
Total ..	20,470	..	43,045	..	51,196	..	54,562	..
Male births per 100 births ..	..	52.04	..	51.23	..	51.45	..	51.65

BIRTHS BY SEX AND RACE, 1953

——	Urban Area	Rural Area	Singapore Total
Males			
Europeans	159	260	419
Eurasians	170	7	177
Chinese	16,108	5,446	21,554
Malays	2,085	1,664	3,749
Indians	1,641	383	2,024
Others	179	77	256
Total ..	20,342	7,837	28,179
Females			
Europeans	164	270	434
Eurasians	132	16	148
Chinese	14,977	5,122	20,099
Malays	1,971	1,556	3,527
Indians	1,554	378	1,932
Others	180	63	243
Total ..	18,978	7,405	26,383
Grand Total ..	39,320	15,242	54,562

69. The annual increase in the number of births over the post-war period is seen to be continuing at a phenomenal rate. The 1953 figure of 54,562 is an all-time record.

70. The crude birth rate is 48.68. The rising trend in the birth rate may appear a little perplexing when our improving standards of living, the promotion of adult education, and the fostering of a responsible attitude of parents to their children might be expected to promote family limitation. But almost certainly the intense overcrowding and the approaching parity between the sexes are the factors which will continue to more than counter-balance any such suggested influences for a long time to come.

71. It is usually supposed that the Chinese are the most reproductive of the three main races in the country—Chinese, Malays and Indians. An examination of the figures based on the women in the child-bearing ages in the various races calculated from the age/sex distribution of the 1947 census would appear to indicate that the ratios are as follows, taking 100 at the standard for all races: —

Chinese	93.8
Malays	100.5
Indians	151.7

BIRTHS BY SEX, RACE AND MOTHERS' AGES, 1953

Mothers' Age in years	EUROPEANS		EURASIANS		CHINESE		MALAYS		INDIANS		OTHERS		UNKNOWN		TOTAL	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
12 years ..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	3	..
13 years ..	..	..	..	..	..	3	1	..	1	2	..	..	..	..	2	5
14 years ..	..	..	..	..	3	5	9	8	6	10	..	..	..	..	18	23
15 years ..	..	..	..	1	14	14	43	51	18	26	1	2	..	..	76	94
16 years ..	..	..	1	..	74	49	132	131	46	37	1	3	..	..	254	220
17 years ..	1	1	3	2	200	224	221	199	72	94	8	5	..	..	505	525
18 years ..	1	2	1	1	460	421	347	289	113	110	8	5	..	..	930	828
19 years ..	5	3	12	4	654	633	223	220	106	110	10	14	..	..	1,010	984
20 years ..	13	10	5	10	1,008	855	346	306	141	140	22	15	..	..	1,535	1,336
21 years ..	21	25	13	10	1,120	1,057	201	185	125	111	20	20	..	..	1,500	1,408
22 years ..	29	28	10	7	1,237	1,149	258	254	145	151	16	18	..	..	1,695	1,607
23 years ..	24	37	10	9	1,411	1,370	205	214	163	126	17	15	..	..	1,830	1,771
24 years ..	27	28	11	13	1,407	1,261	194	177	106	140	15	22	..	..	1,760	1,641
25 years ..	40	28	10	12	1,322	1,238	276	276	137	127	21	13	..	..	1,806	1,694
26 years ..	29	30	12	8	1,258	1,155	151	156	116	99	17	13	..	..	1,583	1,461
27 years ..	29	24	11	7	1,034	1,051	129	145	84	95	16	17	..	..	1,303	1,339
28 years ..	31	26	10	7	1,002	959	175	183	101	101	17	12	..	..	1,336	1,288
29 years ..	25	25	15	10	1,008	910	95	81	75	64	11	6	..	..	1,229	1,096
30 years ..	21	33	13	6	977	886	207	169	115	88	7	8	..	..	1,340	1,190
Carried forward	296	300	137	107	14,190	13,240	3,215	3,044	1,670	1,631	207	188	..	..	19,715	18,510

BIRTHS BY SEX, RACE AND MOTHERS' AGES, 1953

Mothers' Age in years	EUROPEANS		EURASIANS		CHINESE		MALAYS		INDIANS		OTHERS		UNKNOWN		TOTAL	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Brought forward	296	300	137	107	14,190	13,240	3,215	3,044	1,670	1,631	207	188	..	..	19,715	18,510
31 years ..	25	21	5	4	814	763	58	39	40	45	12	6	..	..	954	878
32 years ..	21	26	3	6	834	802	91	73	74	54	8	10	..	..	1,031	971
33 years ..	15	22	7	3	730	658	55	58	44	41	9	7	..	..	860	789
34 years ..	12	12	6	4	740	661	46	44	37	34	6	5	..	..	847	760
35 years ..	8	10	4	5	683	653	115	97	51	40	5	7	..	..	866	812
36 years ..	10	10	2	6	644	568	39	25	24	15	1	3	..	..	720	627
37 years ..	10	4	5	3	567	529	25	28	27	17	1	2	..	..	635	583
38 years ..	12	7	1	1	552	536	39	35	22	20	4	4	..	..	630	603
39 years ..	4	8	3	5	426	455	18	24	10	13	1	5	..	..	462	510
40 years ..	5	5	2	1	422	365	22	31	14	13	..	..	..	..	465	415
41 years ..	1	2	..	..	307	262	6	5	4	8	2	1	..	..	320	278
42 years ..	..	5	2	1	239	225	8	7	5	1	..	..	..	..	254	239
43 years ..	..	1	..	..	187	162	2	6	..	..	..	1	..	..	189	170
44 years ..	..	..	..	1	92	96	5	4	1	..	..	1	..	..	98	102
45 years ..	..	1	..	1	71	66	3	2	..	..	..	1	..	..	74	71
Over 45 ..	..	..	..	..	56	58	2	5	1	..	..	..	..	..	59	63
Unknown ..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
Total ..	419	434	177	148	21,554	20,099	3,749	3,527	2,024	1,932	256	241	..	2	28,179	26,383

DEATHS AND DEATH RATES

——	1931		1947		1952		1953	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chinese	10,599	25.09	9,368	12.87	9,050	10.90	8,484	9.87
Malays	1,905	29.08	2,029	17.70	1,922	14.60	1,984	14.49
Indians	820	15.81	878	12.32	798	9.96	814	9.33
Europeans ..	51	6.20	74	8.49	103	7.07	92	5.82
Eurasians ..	103	14.76	84	9.32	85	7.86	82	7.37
Others	145	18.58	78	11.92	102	9.36	100	9.49
Total ..	13,623	24.20	12,511	13.34	12,060	11.20	11,556	10.31

DEATHS BY SEX AND RACE, 1953

——	Urban Area	Rural Area	Singapore Total
Males			
Europeans	34	32	66
Eurasians	41	2	43
Chinese	4,002	856	4,858
Malays	573	479	1,052
Indians	479	75	554
Others	38	14	52
Total ..	5,167	1,458	6,625
Females			
Europeans	15	11	26
Eurasians	35	4	39
Chinese	2,942	684	3,626
Malays	530	402	932
Indians	218	42	260
Others	38	10	48
Total ..	3,778	1,153	4,931
Grand Total ..	8,945	2,611	11,556

SINGAPORE

DEATH BY AGE-GROUPS. REGISTRATION AREA AND SEX, 1953

Age Group	URBAN AREA			RURAL AREA			SINGAPORE TOTAL		
	Male	Female	Male and Female	Male	Female	Male and Female	Male	Female	Male and Female
Under 1 day	183	152	335	37	34	71	220	186	406
1 day and under 2 days ..	50	33	83	22	13	35	72	46	118
2 days and under 3 days ..	44	31	75	13	7	20	57	38	95
3 days and under 4 days ..	39	34	73	10	14	24	49	48	97
4 days and under 5 days ..	39	35	74	6	12	18	45	47	92
5 days and under 6 days ..	33	31	64	7	4	11	40	35	75
6 days and under 7 days ..	33	17	50	1	3	4	34	20	54
7 days and under 14 days ..	185	145	330	23	27	50	208	172	380
14 days and under 21 days ..	132	128	260	27	15	42	159	143	302
21 days and under 28 days ..	60	43	103	14	10	24	74	53	127
NEO-NATAL DEATHS ..	798	649	1,447	160	139	229	958	788	1,746
28 days and under 2 months ..	147	137	284	71	46	117	218	183	401
2 months and under 3 months	115	87	202	53	30	83	168	117	285
3 months and under 4 months	78	66	144	41	27	68	119	93	212
4 months and under 5 months	62	51	113	24	16	40	86	67	153
5 months and under 6 months	54	44	98	15	13	28	69	57	126
6 months and under 7 months	47	40	87	26	21	47	73	61	134
7 months and under 8 months	48	48	96	21	7	28	69	55	124
8 months and under 9 months	54	44	98	16	19	35	70	63	133
9 months and under 10 months	48	46	94	14	18	32	62	64	126
10 months and under 11 months	56	39	95	16	15	31	72	54	126
11 months and under 12 months	27	31	58	15	19	34	42	50	92
Infant Mortality* ..	1,534	1,282	2,816	472	370	842	2,006	1,652	3,658
Under 1 year	1,534	1,282	2,816	472	370	842	2,006	1,652	3,658
1 year and under 2 years ..	244	243	487	87	93	180	331	336	667
2 years and under 3 years ..	127	142	269	56	52	108	183	194	377
3 years and under 4 years ..	92	92	184	32	29	61	124	121	245
4 years and under 5 years ..	59	64	123	14	26	40	73	90	163
5 years and under 10 years ..	115	105	220	32	34	66	147	139	286
10 years and under 15 years ..	41	48	89	12	11	23	53	59	112
15 years and under 20 years ..	76	53	129	19	16	35	95	69	164
20 years and under 25 years ..	91	64	155	28	23	51	119	87	206
25 years and under 30 years ..	109	94	203	20	23	43	129	117	246
30 years and under 35 years ..	126	84	210	26	23	49	152	107	259
35 years and under 40 years ..	181	101	282	39	26	65	220	127	347
40 years and under 45 years ..	313	150	463	59	35	94	372	185	557
45 years and under 50 years ..	327	146	473	73	37	110	400	183	583
50 years and under 55 years ..	404	182	586	78	50	128	482	232	714
55 years and under 60 years ..	398	166	564	82	58	140	480	224	704
60 years and under 65 years ..	364	189	553	94	53	147	458	242	700
65 years and under 70 years ..	237	151	388	80	51	131	317	202	519
70 years and under 75 years ..	167	171	338	68	60	128	235	231	466
75 years and under 80 years ..	90	109	199	44	32	76	134	141	275
80 years and under 85 years ..	50	79	129	24	29	53	74	108	182
85 years and over	20	59	79	19	21	40	39	80	119
Age Unknown	2	4	6	..	1	1	2	5	7
Total, all Ages ..	5,167	3,778	8,945	1,458	1,153	2,611	6,625	4,931	11,556

*Includes neo-natal deaths.

DEATHS GROUPED ACCORDING TO AGE, SEX AND RACE 1953.

Age Group	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	Unknown	Total
Under 1 day	M.	2	4	159	39	16	..	..	220
	F.	3	2	134	36	10	1	..	186
1 day and under 2 days ..	M.	2	1	54	11	3	1	..	72
	F.	..	1	35	6	3	1	..	46
2 days and under 3 days ..	M.	1	1	37	10	7	1	..	57
	F.	1	..	30	5	2	..	..	38
3 days and under 4 days ..	M.	2	..	29	15	3	..	..	49
	F.	1	..	33	11	2	1	..	48
4 days and under 5 days ..	M.	..	1	30	11	3	..	..	45
	F.	..	..	30	14	2	1	..	47
5 days and under 6 days ..	M.	..	..	25	11	2	2	..	40
	F.	1	..	25	4	3	2	..	35
6 days and under 7 days ..	M.	..	..	30	2	1	1	..	34
	F.	1	..	12	2	3	2	..	20
7 days and under 14 days ..	M.	1	3	165	22	14	3	..	208
	F.	..	3	129	19	20	1	..	172
14 days and under 21 days ..	M.	1	..	129	18	10	1	..	159
	F.	..	..	114	19	10	..	..	143
21 days and under 28 days ..	M.	..	..	54	15	5	..	..	74
	F.	..	..	40	9	4	..	..	53
Neo-Natal Deaths ..	M & F	16	16	1,294	279	123	18	..	1,746
28 days and under 2 months ..	M.	..	1	129	73	14	1	..	218
	F.	..	2	114	53	11	3	..	183
2 months and under 3 months ..	M.	..	2	91	56	16	3	..	168
	F.	1	..	66	44	5	1	..	117
3 months and under 4 months ..	M.	2	2	64	47	3	1	..	119
	F.	..	1	55	29	7	1	..	93
4 months and under 5 months ..	M.	1	..	51	27	7	..	..	86
	F.	..	..	41	19	6	1	..	67
5 months and under 6 months ..	M.	..	..	40	23	6	..	..	69
	F.	..	..	34	17	6	..	..	57
6 months and under 7 months ..	M.	1	..	34	33	5	..	..	73
	F.	..	..	33	24	4	..	..	61
7 months and under 8 months ..	M.	..	..	42	24	3	..	..	69
	F.	..	..	32	18	5	..	..	55
8 months and under 9 months ..	M.	..	..	40	22	6	2	..	70
	F.	..	..	38	21	4	..	..	63
9 months and under 10 months ..	M.	..	..	38	19	5	..	..	62
	F.	..	..	42	18	3	1	..	64
10 months and under 11 months ..	M.	..	..	52	15	5	..	..	72
	F.	1	..	40	12	1	..	..	54
11 months and under 1 year ..	M.	..	..	27	14	1	..	..	42
	F.	..	..	28	18	3	1	..	50
Infant Mortality *	M & F	22	24	2,425	905	249	33	..	3,658

*Includes neo-natal deaths.

DEATHS GROUPED ACCORDING TO AGE, SEX AND RACE 1953.—*continued*

Age Group	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	Unknown	Total
Under 1 year	M.	13	15	1,320	507	135	16	..	2,006
	F.	9	9	1,105	398	114	17	..	1,652
1 year and under 2 years ..	M.	..	4	226	88	12	1	..	331
	F.	1	..	237	80	17	1	..	336
2 years and under 3 years ..	M.	1	..	132	38	11	1	..	183
	F.	..	1	137	44	12	..	..	194
3 years and under 4 years ..	M.	1	..	91	22	7	3	..	124
	F.	..	..	87	23	8	3	..	121
4 years and under 5 years ..	M.	..	..	58	12	3	..	..	73
	F.	..	..	62	21	6	1	..	90
5—9 years	M.	..	..	118	18	9	2	..	147
	F.	..	..	104	26	9	..	..	139
10—14 years	M.	..	..	41	11	1	..	..	53
	F.	..	1	48	7	2	1	..	59
15—19 years	M.	3	..	66	14	12	..	..	95
	F.	1	..	47	16	4	1	..	69
20—24 years	M.	7	1	74	15	18	4	..	119
	F.	1	..	55	24	7	..	..	87
25—29 years	M.	3	..	86	24	16	..	..	129
	F.	3	1	70	33	8	2	..	117
30—34 years	M.	5	1	96	19	29	2	..	152
	F.	1	1	70	27	8	..	..	107
35—39 years	M.	7	..	147	21	44	1	..	220
	F.	2	..	90	28	7	..	..	127
40—44 years	M.	4	2	283	23	56	4	..	372
	F.	2	2	146	30	5	..	..	185
45—49 years	M.	3	1	318	31	44	3	..	400
	F.	..	1	143	29	8	2	..	183
50—54 years	M.	5	4	387	40	45	1	..	482
	F.	1	4	191	27	8	1	..	232
55—59 years	M.	4	3	382	50	34	7	..	480
	F.	..	3	180	26	11	4	..	224
60—64 years	M.	6	6	373	36	35	2	..	458
	F.	1	4	202	20	12	3	..	242
65—69 years	M.	2	1	264	27	22	1	..	317
	F.	..	2	175	19	3	3	..	202
70—74 years	M.	1	2	198	22	10	2	..	235
	F.	2	5	195	25	3	1	..	231
75—79 years	M.	..	2	116	10	6	..	..	134
	F.	1	2	127	8	2	1	..	141
80—84 years	M.	1	1	56	11	4	1	..	74
	F.	1	2	89	11	3	2	..	108
85 years and over	M.	..	..	25	13	1	..	..	39
	F.	..	1	65	10	3	1	..	80
Age Unknown	M.	..	..	1	..	..	1	..	2
	F.	..	..	1	..	..	4	..	5
Total ..	M & F	92	82	8,484	1,984	814	100	..	11,556

72. The death rate for 1953 is the lowest on record at 10.31 per 1,000 of the population, and compares more than favourably with any Western country as a crude death rate. The table showing the total number of deaths, rate per million of population, and comparison with average rate for 1939/1941 by principal causes of deaths, is discontinued in this Report. With the adoption of the new nomenclature, a different grouping system has been followed and in consequence certain disease trends have now become non-comparable. Furthermore, quite apart from improvement or deterioration in health conditions, the index numbers are influenced by changes in age, sex, and racial distribution of the population, and the accuracy of certification as to cause of death. These conditions now are believed to be quite different from what they were in 1939–1941.

73. Nevertheless, certain comparisons can be made with confidence. The recorded deaths from malaria and unspecified fever have dropped from a pre-war figure of 1,547 per million to 323. In any case, no new malaria case has been notified as contracted from the Colony for some two years. Recorded deaths from pulmonary tuberculosis at 724 are a third of those pre-war, with diseases of the respiratory system excluding tuberculosis and influenza at half the number at that period. Conditions referable to pregnancy, early infancy and infantile convulsion appear to be only some 50 per cent of the 1939/41 average. Diseases due to typhoid, dysentery and the digestive system have fallen from some 2,400 per million to under 1,500.

74. Cancer and all that it covers seems to be the only condition to show a post-war increase, and undoubtedly better diagnosis plays its part here. The recorded increase at 554 deaths per million is small. Beri-beri as a cause of death is insignificant today. The principal recorded causes of deaths are in order of importance:—diseases of the respiratory system excluding tuberculosis and influenza; typhoid, dysentery and enteritis; infantile convulsion, early infancy, pulmonary tuberculosis, senility, heart disease, cancer. The number of deaths per million is now the lowest ever recorded at 10,311. The 1952 figure was 11,196, the 1939/41 average 20,425.

INFANT MORTALITY

Race	1931		1947		1952		1953	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chinese ..	3,041	183.83	2,671	79.43	2,434	62.27	2,425	58.22
Malays ..	722	261.35	784	143.25	823	120.01	905	124.38
Indians ..	171	163.73	236	76.45	243	66.19	249	62.94
Europeans ..	5	29.59	18	57.69	24	31.70	22	25.79
Eurasians ..	23	110.55	28	77.99	17	47.35	24	73.85
Others ..	34	149.78	21	113.51	36	78.28	30*	60.12
Unknown ..	..	..	..	..	5	..	..	..
Total ..	3,996	191.30	3,758	87.33	3,582	69.97	3,658	67.04

*Includes 3 of unknown racial group.

INFANT MORTALITY

	URBAN AREA		RURAL AREA		SINGAPORE TOTAL		Rate per mille of births
——	Births	Deaths under one year	Births	Deaths under one year	Births	Deaths under one year	
FIRST QUARTER January .. February .. March ..	8,980	* 626	3,476	219	12,456	845	67.84
SECOND QUARTER April .. May .. June ..	9,596	* 735	3,807	218	13,403	953	71.10
THIRD QUARTER July .. August .. September ..	10,148	* 762	3,890	200	14,038	962	68.53
FOURTH QUARTER October .. November .. December ..	10,596	693	4,069	205	14,665	898	61.23
Total ..	39,320	2,816	15,242	842	54,562	3,658	67.04

*Includes one of unknown racial group.

75. The infant mortality rate now stands at 67.04 against the 69.97 of 1952. This compares very favourably indeed with the 1939 figure of 130.43 and 285.0 in 1944. For the three main races—Chinese, Malays and Indians—the Chinese rate is still the lowest at a record of 58.22 as compared with 62.27 in 1952, the Indian being a close second with 62.94 as compared with 66.19 in 1952. The Malay rate shows a slight increase from 120.01 in 1952 to 124.38 in 1953 but compared more than favourably with the 136.76 in 1951.

76. It is surprising that the infant mortality rate has not increased over the last twelve months in view of the malicious rumours which seriously affected the child welfare work in certain of the rural districts for over three months in the middle of the year. These suggested that the anti-diphtheria inoculations and the taking of blood in connection with congenital syphilis were aimed at sterility measures; that the Government intended to reduce the future birth rate through its infant and maternity welfare centres. It took some weeks of intensive propaganda to overcome the baseless suspicions of the rural dwellers. This trouble undoubtedly affected the Malay section most, and tended to increase the infant deaths there particularly.

77. Another reason for the very high infant mortality rate amongst Malays has already been advanced above in the discussion on the ages of parturient mothers. Other causes are environmental, social and economic. Both in the City and in the Rural areas, the majority of Malays live in circumstances far less satisfactory in regard to modern standards of hygiene

and sanitation. On the whole, it is not a wealthy section: the grandmother, the pawang and the dukun (local medicine man) still wield their traditionally powerful influence in these households.

78. Naturally, the present rate has still a long way to go to reach the figure attainable in such countries as England and Wales which now approximates to thirty infant deaths under one year of age per 1,000 live births. Singapore is, of course, subject to disease conditions which are unknown in England and its population is concentrated to a far greater extent in cubicle housing which creates the worst of slum conditions. In addition, any territory which is subject to such a phenomenally high birth rate as that of Singapore will never be able to attain the low levels that are possible in countries with birth rates of under 20. Furthermore, areas with more than one race and with a percentage still adhering to Eastern forms of medicine have additional problems which have considerable effect on our infant mortality rate.

79. There is reason to believe that the real rate is probably lower than the 67.04 stated. The Colony of Singapore has always recorded a very much lower still birth rate than England and Wales. For example, in the year 1953, our rate was 17.0 per 1,000 births as against 22.6 for England and Wales in 1950. On the other hand our neo-natal mortality rate is extremely high, viz: 31.8 in Singapore 1953 and 18.6 in England and Wales 1950. While there is a possibility that not all still births are registered, the probable practice has been to register them as born alive; further obstetrical enthusiasm may well be responsible for bringing into the world babies who die after barely breathing. This latter argument is strengthened by the fact that in the City area where all medical practitioners are concentrated and where the Kandang Kerbau Maternity Hospital is situated, proportionately 3 times as many deaths due to prematurity are recorded than in rural Singapore.

80. The maternal mortality rate was returned as 1.2 per 1,000 live births for the year under review, and can be considered a very satisfactory one under all the circumstances concerned. This compares with a rate of 7.0 in 1945, 4.0 in 1939 and 1.7 in 1952.

81. Again, the same social forces which condone early marriage and motherhood, and reliance on quacks for medical needs, are in large part responsible for our still comparatively high maternal mortality rate.

MIGRATION STATISTICS BY SEA AND AIR DURING 1953*

IMMIGRANTS

Race	ADULTS		CHILDREN		Total
	Male	Female	Male	Female	
Europeans	20,114	8,798	2,291	1,144	32,347
Eurasians	177	125	57	45	404
Chinese	19,996	10,146	3,027	2,088	35,257
Malaysians	5,322	1,685	334	328	7,669
Indian and Pakistani ..	20,517	2,342	1,036	654	24,549
Japanese	198	24	10	..	232
Other Races	1,438	358	82	77	1,955
Total all Races ..	67,762	23,478	6,837	4,336	102,413

*Including Deck Passengers.

EMIGRANTS

Race	ADULTS		CHILDREN		Total
	Male	Female	Male	Female	
Europeans	21,495	8,697	2,044	961	33,197
Eurasians	185	127	56	39	407
Chinese	29,157	7,251	2,439	1,241	40,088
Malaysians	5,716	1,741	497	462	8,416
Indian and Pakistani ..	15,025	1,866	931	643	18,465
Japanese	216	13	6	1	236
Other Races	1,542	446	158	110	2,256
Total all Races ..	73,336	20,141	6,131	3,457	103,065

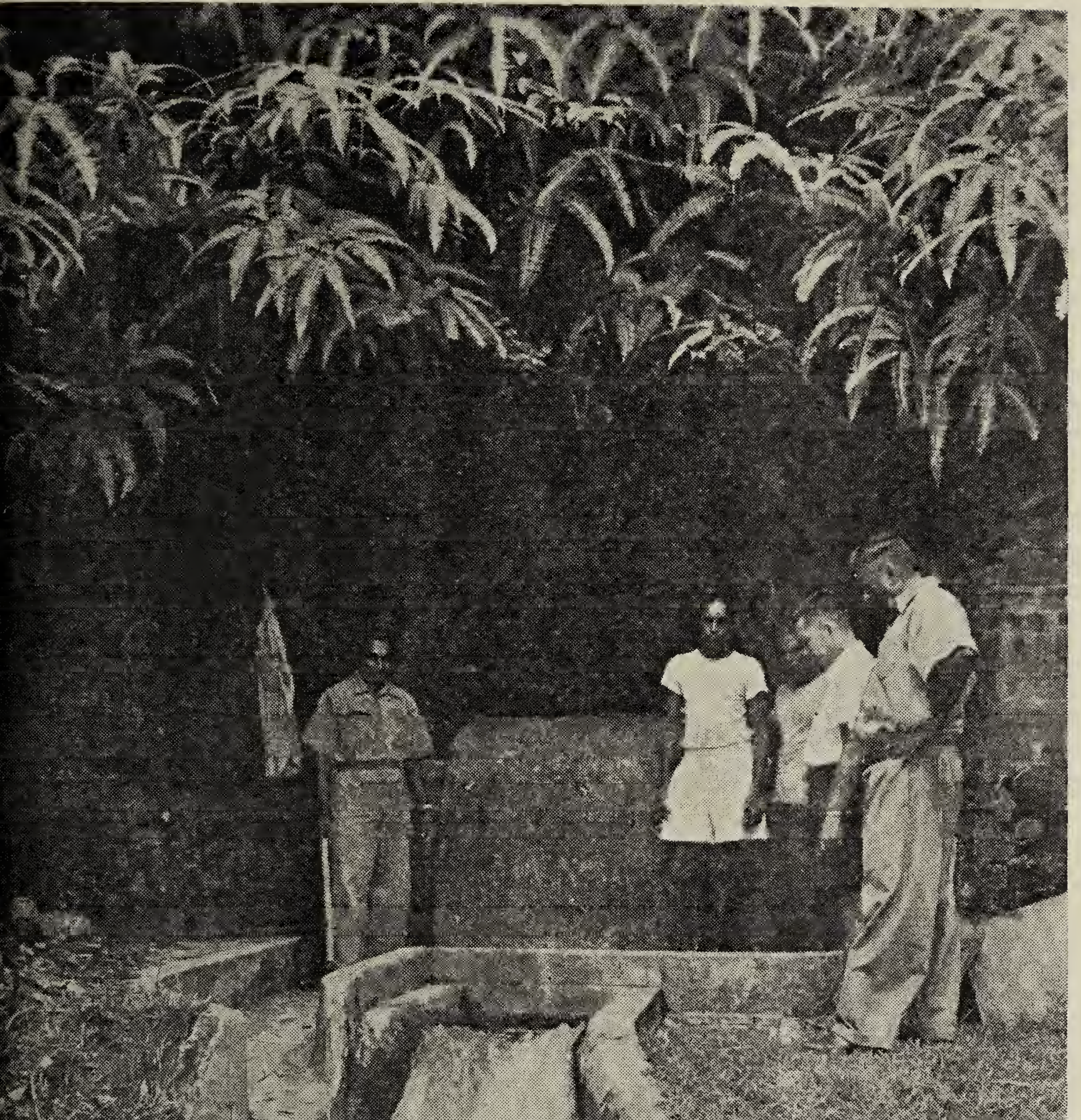
CHINESE DECK PASSENGERS FROM AND TO CHINA AND HONGKONG 1953

Country	IMMIGRANTS				Total	EMIGRANTS				Total
	ADULTS		CHILDREN*			ADULTS		CHILDREN*		
	Male	Female	Male	Female		Male	Female	Male	Female	
China	831	3,817	1,443	992	7,083	3,932	861	529	426	5,748
Hong Kong ..	1,063	895	330	252	2,540	4,303	1,524	942	245	7,014
Total ..	1,894	4,712	1,773	1,244	9,623	8,235	2,385	1,471	671	12,762

*Under 12 years of age.

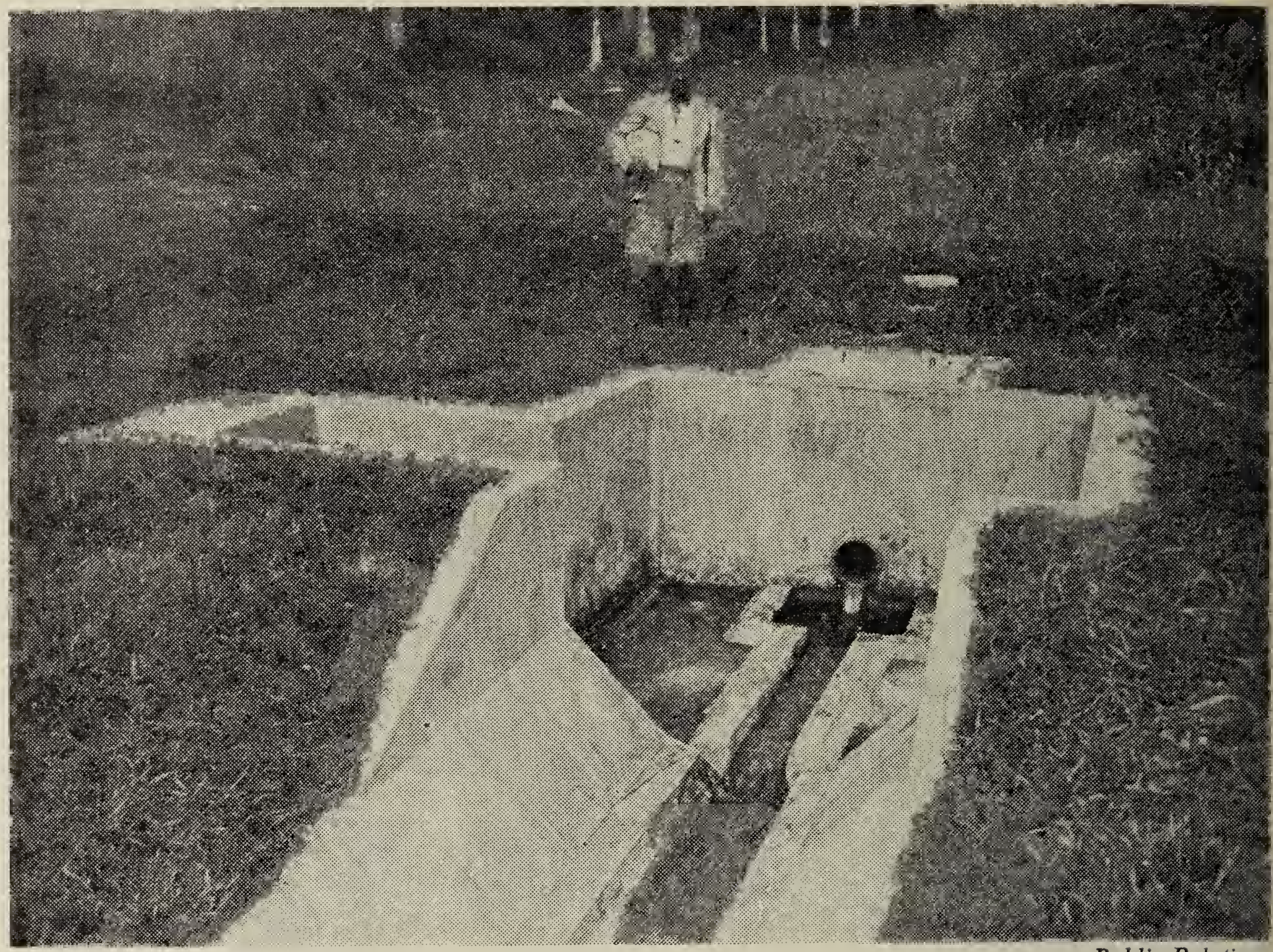
PART II

THE HEALTH DIVISION



Public Relations

An anti-malarial Automatic Syphon Sluice at work



Public Relations

An anti-malarial wash well

Public Relations

An anti-malarially drained land. Opportunity was taken to provide a fresh water swimming pool

CHAPTER FIVE

INTRODUCTION

82. The year witnessed a further consolidation and progress in the health service provided by the Government towards the full implementation of the Five-year Medical Plan.

83. The mid-year estimate of the rural population shows an increase of 15,000 persons over that for last year at a total of 320,073. At the same time there has been a reduction in the total figure for deaths and a rise in the total number of births. Whilst the fall in deaths and rise in births have contributed to the increase in the population figure, due weight must be given to the continued increase in movement of people from the City to new residences in the Rural areas.

84. While the numbers of still-births and infant deaths have increased slightly over the last twelve months, as must be expected when the population total is constantly rising, in each case the rates per mille have decreased most satisfactorily. A similar fall has been noted also in the maternal mortality rate.

85. No major epidemic of infectious disease occurred during the year. A few isolated cases in less important disease conditions did serve however to emphasize the fact that while Singapore continues to enjoy a high degree of Western health standards it is still a tropical country and consequently one subject to constant risk from tropical disease. The occurrence of two minor outbreaks of *malaria on out-lying islands* is discussed later in the report. They serve to stress still further the emphasis given during the year by the Public Health Conference to the importance of malaria and its control. The causative circumstances differed considerably in each case. In one incident infection was imported from outside the Colony to an area hitherto uncontrolled for *A. maculatus*. In the second episode the inadvertent action of the islanders in interfering with natural tidal drainage gave rise to heavy breeding of *A. sundaicus*. Both these explosive outbreaks were quickly restricted in time, space, and the number of cases by prompt and energetic measures. Full descriptive details are given in that part of the report dealing with anti-malarial control.

86. A number of cases of Scrub Typhus were reported from an area on the eastern side of Singapore. Later investigations revealed a focus of infection limited to a small circumscribed portion of land. This discovery has led to further intensified efforts to locate other unsuspected foci.

87. The figure for reported cases of leprosy is much lower than that for the years 1950 and 1951 respectively, but is slightly higher than that for last year. Greater assistance is given in the detection of new cases, in the maintenance of treatment and close follow-up, and in the return of defaulting or absconding patients from Trafalgar Home.

88. There was no increase in the number of reported cases of poliomyelitis during the year as compared with 1952. The figure in fact is lower than was expected. In earlier reports it was suggested that an epidemic periodicity varying from twenty-eight to thirty months appeared to be a feature in Singapore, and the end of such a cycle coincided with the last quarter of this year. Strict watch was kept in case of an outbreak but fortunately it did not materialise.

89. Whilst diphtheria has decreased in reported incidence during the year as compared with cases in 1952, the figures still remain at a high level. Concern is still felt in view of the disabling effects of the disease and the high fatality rate amongst reported cases. Positive measures are being taken to protect all the highly susceptible young children by active immunisation measures on an intensified scale.

90. One final word must be said with regard to infectious disease generally and its special affinity for the younger age-groups. The next few years may witness some increase in the numbers of reported cases. More City residents are moving to new abodes in the rural areas. The personal health services are expanding very rapidly but younger children are yearly increasing rapidly in numbers.

91. The quarantine service (Sea and Air) has maintained its high level of efficiency despite the increasing number of demands on it. The new international airport is still under construction, but with its completion in the near future much additional work must be anticipated.

92. The staff situation in the Health Division has given rise to misgiving for some years as a reference to previous Annual Reports will indicate clearly enough. Some improvement in this respect did occur during the year under review however. Increases were confined largely to the junior personnel. The present position with regard to staff requirements shows that some further priority must be given to the School Health service and to Maternity and Child Welfare and Quarantine Services especially to Air control.

93. The difficulty continues of course to be the attraction of qualified staff to a career in rural health. While this will be overcome to a considerable extent by the provision of adequate and reasonable accommodation as the Medical Plan advances, doctors will still hanker after medical and surgical specialization until a life devoted to health work can be made more attractive.

94. The Chief Health Officer is a member of the Rural Board and advises the Board on matters of general policy affecting public health. The Health Division is in control of all rural scavenging and conservancy services and employs the labour engaged in such Rural Board duties. All building plans are scrutinised by the rural health officers, who besides being responsible for these executive functions also carry out all necessary anti-malarial measures.

95. The Government Maternity and Child Welfare staff does all its work in the rural areas, while the School Medical and Dental section looks after the health of both urban and rural school children and advises on school buildings. Colony commitments still remain in respect of quarantine (Sea and Air), School health, Government buildings and lands belonging to the Crown.

96. The staff engaged directly on Rural Board duties is as follows:—

Health Officers	3
Supervisor, Public Health Works	2
Chief Sanitary Inspector	1
Senior Sanitary Inspectors	3
Sanitary Inspectors	11
Probationary Sanitary Inspectors	8
Technical Subordinates (Special Grade)	6
Technical Subordinates	24
Technical Subordinates (Probationary)	10
Labourers: (*a*) Anti-malarial	377
(*b*) Scavenging, etc.	368

97. The Maternity and Child Welfare service is staffed as follows:—

Lady Health Officers	2
Public Health Matrons	2
Health Sisters	6
Health Nurses	12
Health Midwives	43
Health Servants	31

98. A new venture was started in August with the commencement of a dental service for rural mothers and young children. Further expansion is planned for next year. This is a happy augury for the future of Rural Singapore and it must receive still more impetus from the determined drive begun recently in respect of health education.

99. During the past two years the Maternity and Child Welfare service has made enormous strides in its path towards a complete and comprehensive modern domiciliary service. A further step was taken this year by the completion of four more excellent clinics. In one case, that at Pulau Tekong, a small cottage hospital is provided in a building affording full clinic facilities. One new midwife centre has been established through the voluntary goodwill and effort of villagers and their district committee. Five more clinics will be provided by the Government in 1954.

100. The addition of these excellent centres to those already in existence coincides with increased equipment and staff. Besides, more extensive training facilities were possible during the year for those engaged in domiciliary midwifery.

101. The School Health Service has not witnessed such marked changes but has maintained its steady progress. Further benefits should accrue from the new methods of documentation introduced by the efficiency consultant to Government. This branch of the Service has always been handicapped by frequent staff changes because of resignations by temporary lady doctors, and also by a lack of adequate clinics. The Medical Plan envisaged a complete new headquarters for this work in the new Urban Health Centre to be started in 1955 with the development of minor clinics in groups of schools. Meanwhile, the section's detailed report will indicate the steady increase in the work of the staff.

102. The travelling and floating dispensaries continued their essential service to the more isolated section of the population and this work will be increased in scope until more static clinics can be developed.

103. On the health engineering side a low cost type of septic tank was devised for use in the Rural Area. It is at present undergoing extensive trials with the co-operation of a large business firm.

104. Notable visitors during the year included Dr. Wilson Rae, C.M.G., (Medical Adviser to the Colonial Office, London) who as well as attending the Colony's Health Exhibition was able to visit the Rural Area and see at close quarters the standards and varieties of rural health measures undertaken.

105. While any progressive health department can achieve much independently, close co-operation must always be maintained with other closely-related bodies and local authorities. I wish therefore to record with gratitude the cordial relations experienced in all dealings with the Rural Board, the University Department of Social Medicine and Public Health, the Government Departments of Social Welfare, Education, Public Relations and Public Works, the City Health Department, and the Armed Forces.

HEALTH EDUCATION

106. In April, the Colony witnessed its first comprehensive Health Exhibition which was opened significantly on United Nation's Day. This Department welcomed the occasion particularly as an opportunity to display its activities. Preventive health was presented in a simple and practical form. In addition to the striking and artistic posters, charts, large scale photographs, and a live tableau depicting a typical Maternity and Child Welfare Clinic, there were many working models to illustrate anti-malarial control and other important environmental measures.

107. The next event with more specific and significant importance to the Department was, the appointment of a Health Education Officer on the 4th of August. Immediately on his arrival, particular care was taken to ensure his proper fitting into the health circle.

108. The duties of the new officer include assistance to the division of Social Medicine and Public Health at the University of Malaya. This ensures greater co-ordination between the academic staff and the practical workers in public health. A further binding of these spheres has been the formation of a co-ordinating committee for health education which is to lead to the formation of a Health Education Council for the Colony. Its members include representatives of the Social Welfare and Health Departments, the University of Malaya, the Public Relations Department and the general public. Even now, the fruits of these efforts are apparent in the socio-medical survey being conducted amongst a rural district population and also in the teaching of simple personal health facts to under-privileged children at community centres.

109. The Chief Health Officer was Dr. M. Doraisingham, L.M.S. (Singapore) 1931, D.P.H. (London) 1951, until he assumed the post of Deputy Director of Medical Services on the retirement of Dr. T. F. Strang in October 1953 when Dr. J. G. Burns, M.B., CH.B. (Q.U. Belfast) 1936, D.P.H. (U. Wales) 1952, acted in this capacity.

CHAPTER SIX

INFECTIOUS DISEASE IN RURAL SINGAPORE

110. Since the epidemic of small-pox which prevailed from May 1946 to March 1947, contributing 152 cases with forty-two deaths, and a further five cases in 1948, Singapore has not witnessed any quarantinable infectious disease, viz. small-pox, plague, cholera, typhus, yellow fever or relapsing fever, in spite of the contiguity of territories in which many of these dangerous infectious diseases are either endemic or epidemic, and from which arrivals under quarantine observation were, at times, found to be suffering from variola major. Endemicity however exists in respect of diphtheria, chicken-pox, measles and whooping-cough. Diseases whose spread and prevalence are favoured by overcrowding are on the increase. This is particularly the case with diphtheria, chicken-pox and measles.

111. The rapidly changing conditions in the Colony's pattern of life with its increasing population, housing developments and factory establishments demand constant vigilance. Urbanisation brings in its train an upward trend in the diseases usually associated with it. Important outstanding factors are the high birth rate, the increasing numbers in the young age-groups of the community, as well as the many more schools established during the past few years.

DIPHTHERIA

112. During the year ninety-five cases of Diphtheria were reported from the Rural Areas. Particular attention has been given to the sustained though gradual rise in the number of reported cases of diphtheria since 1949. In consequence, every encouragement is given to parents to have their children inoculated against this disease. Facilities are available at all Maternity and Infant Welfare Centres. To impress still more on the general public the dangers associated with the disease and the protection afforded by immunisation, preparations have begun and are well advanced for another intensified anti-diphtheria campaign on a Colony-wide basis early in 1954.

113. The following table shows the numbers of reported cases of diphtheria for the City and Rural areas of Singapore for the past five years:—

Year	*City*	*Morbidity rate per thousand*	*Rural*	*Total*	*Morbidity rate per thousand*
1949	241	0.35	47	288	0.17
1950	224	0.31	49	273	0.20
1951	392	0.52	90	482	0.30
1952	352	0.46	111	463	0.36
1953	245	0.31	95	340	0.29

CHICKEN-POX

114. Compared to 128 cases in 1952 from the Rural Area 212 cases were reported during the current year. The appreciable movement of people from the more crowded City areas has greatly increased the case-to-contact risk of spread and must be placed among the general causes responsible for the greater incidence.

115. Investigation and supervision of cases has received material help by the issue of a more comprehensive pro-forma for use by the Health Inspectors. Emphasis is placed on the collection of facts relating to the history of previous vaccinations, contacts, availability of isolation and facilities at home. The importance of this minor condition in a tropical country depends of course on the diagnosis *vis-a-vis* small-pox.

SCRUB TYPHUS

116. While only nine scattered cases were reported from the Rural Area of Singapore during the year this disease has given rise to concern because of the discovery of a definite but circumscribed focus of infection in a coastal area which led to eleven additional cases. Here the rat population was found to harbour Trombicula deliensis. The presence of suitable conditions for the propagation of the disease indicates the necessity of constant vigilance and supervision in this respect.

117. Epidemiological studies are being devoted to an ascertainment of the degree of rat infestation with carrier mites and the infectivity of mites with rickettsiæ.

POLIOMYELITIS

118. During the year out of a total of fifty-two Colony cases eighteen came from the rural districts. There has been three epidemic waves since the re-occupation, one in 1945–46, one in early 1948 and the last in late 1950. Since then there has been a steady but low endemicity.

JAPANESE 'B' VIRUS ENCEPHALITIS

119. Professor Hale, Professor of Bacteriology, University of Malaya, reports as follows:—

> (i) The problem of Japanese *B* Encephalitis in Malaya appears to be quite different from that existing in Japan. In Malaya human cases are sporadic and occur throghout the year, there is not the sharp seasonal incidence reported in Japan.
>
> (ii) Although human cases are infrequent the virus is being disseminated quite freely among certain animals. Horses are infected readily and usually they show the presence of neutralising antibodies within six months of residence in this country. A similar picture is found among pigs. In both these animals the disease is often of a very transient nature and rarely fatal.
>
> (iii) The immediate assumption is that the sporadic nature of cases in the population must be due to the high state of immunity. A serological survey has shown that this is true of the adult Asian population, and as might be expected, the cases that occur are invariably young children. In Malaya there are large numbers of British troops serving for a period of eighteen months to two years. They come from an area where Japanese *B* Encephalitis does not exist, therefore they represent a large susceptible population. Cases in this susceptible group are infrequent and isolated. If a case occurs in a company of troops, serological investigation does not reveal evidence of any inapparent infections among the rest who have shared an identical type of living. Investigation of short term pyrexias in Army personnel show that only about four per cent are due to Japanese *B* Encephalitis infection. Therefore the endemic nature of the human disease cannot be explained solely on the grounds of the immune state of the population. Analysis of the immune state in the Asian population reveals some very interesting features:—
>
> (*a*) from 0–6 months—the immunity is high and it can be demonstrated quite conclusively that this is due to passive transfer of maternal antibodies;
>
> (*b*) the immune state is relatively low but rises quite rapidly in the 12–14 years age-group and then persists.

(iv) The latter result is rather different from the findings in most infectious diseases where the immune state increases steadily over the age groups. This indicates that, at the moment, the disease attacks very infrequently but that some 12–14 years ago there was an epidemic spread when the majority of the population developed immune bodies. This period roughly coincides with the Japanese occupation and it may not represent importation of the virus by the Japanese so much as a break down of anti-mosquito measures (evidence points to the mosquito as the vector of the virus).

(v) All the available evidence to date therefore indicates that the sporadic nature of the disease must be due to some vector peculiarity. The vector transmitting this virus at present must have a very strong preference for animal biting and bites men very occasionally. This should not lead to a state of complacency, it is not difficult to imagine that in the future some new vector with quite different biting habits may become infected when the distribution of the disease would change; or the population density of the present vector may increase due to faulty control. Either or both of which factors may have determined the epidemic-like spread of 12–14 years ago.

(vi) Further work is being conducted in order to try and establish the mosquito that is transmitting the disease in Malaya. It is interesting to note that although the majority of the populaion of Singapore are confined to one area, within the last three years we have not established one case in this area, all have come from the rural areas. This again may be a factor of mosquito distribution.

(vii) All the viruses so far isolated are not of a single antigenic type but show quite wide differences. It is possible that these differences may play some part in the Epidemiology of the disease and they are the subject of study in this laboratory.

TYPHOID

120. Twenty-seven cases were reported during the year but all were found to be isolated incidents. This figure can be considered very low indeed for a tropical country and especially when correlated to the rather insanitary conditions and unhygienic habits prevailing in the Rural Area. Fortunately, a safeguard lies in the consistent practice of the Chinese population of boiling water before domestic use.

121. Active measures to improve general sanitation, the water supply, and the control of numerous hawkers were energetically pursued. At the same time every reported case received a full investigation and follow-up.

122. It is significant that the City pipe-water supply has been extended still further during the year in the Rural Area, and implementation of the policy in this respect is being accelerated.

LEPROSY

123. A total of forty-eight cases of leprosy was notified from the Rural Area during the year, compared with eighty-one in 1950 and seventy-nine in 1951. The incidence of the disease, however, still remains relatively high. It is possible that the success of treatment so widely reported is bringing out persons, suffering from leprosy, from hiding in the hope of cure, and that in due course the number of new cases will fall. The health drive in general is certainly now playing its full part in this connection. The problem created by this disease remains a major one in view of the total number to be cared for by the Colony—some 1,500.

VACCINATION CAMPAIGN AGAINST SMALL-POX

124. The seriously under-vaccinated state of the population of the Colony received attention in the 1951 Annual Report. Following representations from the Public Health Conference a campaign to cover the whole territory on a voluntary basis was initiated in August 1952. Apart from primary vaccination of the new born and re-vaccination of school children, no large scale

vaccination campaign has been carried out in Singapore since 1946 early 1947 when an epidemic of small-pox resulted in some 152 cases and forty-two deaths and led to 275,000 being compulsorily protected. These cases and deaths with the consequent fear raised at that time made that procedure an easy matter although it took some eleven months to accomplish. A compulsory vaccination campaign had been carried out by the Japanese Occupation Authorities but it was suspected with reason that this was largely ineffective owing to very doubtful storage and technique. Thus by 1952 five years had passed resulting in what observation indicated was a largely unprotected population of over one million.

125. Positive action was started on 20th August, 1952 after a 15-day campaign by press, radio, hoardings, posters, pamphlets and mobile broadcasts had been carried out. The Government and City Health authorities and the Public Relations Office co-operated in the fullest sense. Five centres were established for the purpose in the City area and eleven in the Rural Districts apart from a concentration by travelling and floating dispensaries. Staff was grouped for the purpose, and the centres and facilities made available were widely and continuously advertised to the public. An instantaneous success was achieved with some 500,000 vaccinations performed in the first forty days of the campaign and by the end of the year, that is to say within a period of some four months, this figure rose to 600,000. As all children receive primary vaccination during the first few months of life instructions were given that children under three years of age were not to be re-vaccinated. So some 100,000 of these can be added to the total. Over 17,000 persons received inoculation certificates during the period. While vaccinations by private practitioners and doctors to firms cannot be accurately totalled it is thought that these now total some 30,000 (i.e. Shell Company has done 3,000 for instance). Thus approximately 750,000 persons in the Colony can be said to be well vaccinated today.

126. The vaccine was provided by the Institute for Medical Research, Kuala Lumpur, and proved to be a particularly potent and satisfactory material. Many cases which had been claimed previously as immune and 'non-taking' were observed to record a strong reaction. While a large number of severe arm reactions were seen, no untoward results were observed although people were warned to report to clinics or hospitals if necessary. No dressings were used. No generalised infection or generalised vaccinia cases were encountered and no post vaccinal encephalomyelitis was reported although four severe cases of chicken-pox came to notice as reported small-pox or generalised vaccinia.

127. It is suggested that this campaign has been one of the most successful ever undertaken in an Eastern country on a purely voluntary basis outside an epidemic manifestation. The campaign particularly stressed the vital importance of visual propaganda and the necessity of careful and co-ordinated planning in any such procedure.

128. During the year, 39,372 cases of primary vaccination against small-pox were carried out.

CHAPTER SEVEN

HYGIENE AND SANITATION IN THE RURAL AREA

INTRODUCTION

129. The Rural Area is divided into Sanitary Districts which correspond to the districts in which rural committees have been established. These districts now number seven and each is controlled by a sanitary inspector. The total number of sanitary inspectors available now is fourteen. There is one chief sanitary inspector, three senior sanitary inspectors and eleven sanitary inspectors. Of the eleven sanitary inspectors one has been put in charge of special inspections, another is engaged on duties connected with inspection of the dead, and yet another has been seconded for duty with the Immigration Department. This leaves only eight, seven of whom are district inspectors and the other is the inspector in charge of the 'town' gang which looks after the sanitation and hygiene of government property in the City. It can be seen then that the inspectorial staff is fully occupied and is barely able to cope with the growing demand.

130. The inspectors exercise direct authority in their respective districts, their work falling under the following headings:—

(*a*) anti-malarial control and malaria;
(*b*) sewage and refuse disposal;
(*c*) water supplies;
(*d*) offensive trades;
(*e*) housing;
(*f*) food;
(*g*) infectious diseases.

131. The checking of mosquito control is covered by a centrally administered squad consisting of six trained technical subordinates who visit all parts of the Rural Area according to a strict roster. This squad also carries out special and surprise check surveys.

132. The appearance of unauthorized and often insanitary structures while showing an improvement on previous years is still causing considerable alarm as these appear here and there with no consideration for sanitation, drainage or the presence of malarial vectors. An attempt has been made to regularize the situation but while this is the correct approach the amount of work which has to be done is so great that it will take a considerable time before improvement becomes appreciable.

133. Much of the rural activity is concerned with routine such as scavenging and conservancy. It is recognized that a good standard must be maintained in these spheres. Scavenging and conservancy should however function as a separate unit and not be placed as an executive responsibility on the Health Officer. As a result of representations made to the Rural Board, that Board has now approved in principle the formation of a special section which will function as an integral unit of the Health Department but with its own superintendent. The latter has now been appointed.

134. The conflicting interests of good sanitation and need for food production have yet to be solved satisfactorily. The local Chinese farming methods are designed specifically not only to produce food economically but also

tend to breed flies. Our difficulty lies in the fact that many of these farming communities are contiguous to housing estates and the nuisance created by flies with its potential danger to health needs constant attention.

135. The technical subordinates are now in the happy position of having a new and satisfactory scheme which covers their working conditions.

136. When it is considered that this department controls one of the largest labour forces on the island the small amount of labour trouble experienced is commendable. The posting of a Welfare Officer to the division combined with an increase in the basic pay and the cost of living allowance for labourers have been the main reasons for this satisfactory state of affairs.

137. The district sanitary inspectors have started vegetable gardens for the benefit of the labourers and during the year a considerable quantity of vegetables were issued free to families—a good example of self-help.

138. Health education and propaganda by visual methods is being built up through the Maternity and Child Welfare Clinics. The St. John Ambulance Brigade co-operates by running rural field canteens—a very useful and valuable addition to the Government work.

MOSQUITO CONTROL AND MALARIA

139. Sufficient has been said in the introduction to stress the importance of malaria and mosquito control. As no malaria occurred on Singapore Island itself during the year it is not surprising then that the tried and tested measures so long in operation in Singapore were continued throughout 1953. Nor is it without significance that the Public Health Conference in August stressed the importance of malaria, its control, and the need for vigilance against public apathy in this respect. As an aid to better control, the checking system operated by the Central Office of the department was reorganized, so that a thorough check is now possible every month of all the areas under control.

140. Full use was made of the laboratory facilities at our disposal by experimenting with anti-malaria preparations. Constant examinations were made of the anti-malaria oils supplied for use. In the course of next year it is hoped that it will be possible to conduct some further research on the breeding habits of the important vectors.

141. As in the previous year more permanent and temporary measures were introduced and maintained. There are today more than 120 miles of earth drains, 61 miles of concrete drains and 252 miles of sub-soil drains protecting approximately 69 square miles of intensely malarious country. When permanent work has been completed in an area, oiling ceases; this allows the oiling area to be extended until this in turn is subsoiled; as permanent work progresses, oil cost is reduced. Work amounting to 504 miles was completed under temporary ditching and oiling control during the year. Brush oiling is the method in use. Some 56,205 gallons of anti-malarial oil were used with 28 lb. of D.D.T. and 167 gallons of kerosene and 380 lb. of B.H.C. (Gammexane).

142. Regular periodical spraying of houses with D.D.T. takes place on the islands surrounding Singapore.

Staff Arrangements

143. The force engaged in this work consists of a section stationed at the Central Office and field sections operating in each of the seven rural districts. The staff generally comes under the supervision and control of the three rural health officers. The Central section consists of a technical subordinate

(special grade) and four technical subordinates who conduct anti-mosquito surveys on a regional basis throughout the Rural Areas. Field sections in every district come directly under a technical subordinate. The seven districts have been formed into two groups each controlled by a technical subordinate (special grade).

Surveys

144. During the year a total of 347 surveys were done. These were made up of 297 routine surveys of the controlled areas, and 50 special surveys in those parts of the island not receiving regular control. In addition attention was given to complaints of mosquito nuisance from individual members of the rural population. 2,605 larvæ collections were made, 2,240 of which came from controlled areas and 365 from the uncontrolled areas. Following the field survey routine identification of the larvæ is undertaken and where necessary the adults are bred from larvæ to confirm the identification. In addition complete records and plans are kept of the breeding places found during the surveys.

145. While no malaria occurred on the main Island of Singapore the need for constant vigilance and sustained effort was further emphasised by minor out-breaks occurring in Pulau Ubin and Pulau Semakau towards the end of February.

146. Eight cases of malaria were reported from Pulau Ubin by the hospital assistant in charge of the Floating Dispensary visiting the island. Immediate action was taken to prevent the incidence reaching serious proportions. Blood films from the eight cases were examined: three showed benign tertian parasites and five sub-tertian. All were treated with Paludrine and responded satisfactorily. At the same time action was taken against adult anophelines in the form of residual house-to-house spraying with B.H.C. Gammexane Dispersible Powder P520. A total of 200 houses were sprayed. Larval surveys detected the breeding places of the vectors (*A. maculatus* and *A. sundaicus*). Intensive larvicidal (oiling) measures were carried out and the area has now been incorporated in the regular oiling scheme. Thorough investigation showed clearly that the cases arose as a result of infection imported from outside the Colony. No further cases have been reported from the island since then. Prompt action avoided a serious epidemic.

147. In the case of Pulau Semakau a malaria case came to notice when blood film examinations showed malaria parasites. Immediately further investigations were made amongst the inhabitants, particularly the children. Three of the children had positive blood films and altogether there were six individuals with sub-tertian rings. The vector was *A. sundaicus*. Similar measures as in the Pulau Ubin outbreak were immediately instituted and proved effective.

148. Many dangers can result from ill-advised human interference with the natural topography of land. This was brought home most forcibly by two malaria cases occurring in Pulau Sudong in April. Profuse breeding of *A. sundaicus* resulted from the construction of a new football field by the islanders. Drains were blocked and silted up by felled coconut trees causing the formation of brackish water pools. The danger of such work carried out without specialized supervision was explained to the islanders. Suitable action was taken to desilt, deepen and clear the drains so that the breeding pools dried up. House spraying was instituted. No fresh cases have been reported.

149. A feature of these outbreaks is the value of the close liaison which is so essential for efficient work. Different divisions of the Health Department were involved in the detection and suppression of the outbreaks.

SUMMARY OF LARVAL SURVEYS AND SPECIES FOUND FOR THE YEAR 1953

Months	Total Surveys	Check Surveys	Special Surveys	NUMBER OF COLLECTIONS OF ANOPHELES													Others	Total
				mac.	kar.	kochi	hyrc.	sund.	baez	vagus	barb.	sep.	letifer	leuc.	phil.	aitk.		
January ..	18	15	3	12	18	57	41	2	..	11	4	..	..	..	..	1	15	161
February ..	12	8	4	11	3	40	36	..	..	2	3	..	..	..	..	..	15	110
March ..	12	8	4	12	2	35	28	15	6	1	..	..	..	..	..	..	..	99
April ..	18	12	6	3	2	49	44	4	7	4	1	1	..	..	..	2	1	118
May ..	18	13	5	12	3	45	38	8	1	3	3	..	..	..	..	1	..	114
June ..	8	6	2	3	2	20	15	..	2	1	..	..	..	..	..	..	13	56
July ..	27	24	3	11	3	66	76	2	5	13	1	..	..	..	..	1	11	189
August ..	20	16	4	10	3	59	74	4	8	11	2	4	1	..	..	..	9	185
September ..	61	54	7	72	7	147	130	19	14	21	3	1	..	1	1	1	33	450
October ..	67	63	4	23	5	187	129	12	11	20	1	..	..	..	1	..	21	410
November ..	55	54	1	19	4	157	130	6	8	23	1	..	..	..	1	1	60	410
December ..	55	55	..	28	7	161	137	3	6	28	1	..	2	..	..	..	16	389
Total ..	371	328	43	216	59	1,023	878	75	68	138	20	6	3	1	3	7	194	2,691

Public Relations

A typical meaculatus breeding ground controlled by brush oiling

Public Relations

Students of the Royal Sanitary Institute in a field survey

Public Relations

Refuse removal in the rural areas

Public Relations

A persistent problem—unauthorised stalls

150. The dangers of uncontrolled Housing Developments are very real. During the year close attention has been given to a very large housing scheme known as the Serangoon Garden Estate. This development (off Yio Chu Kang Road 6½ milestone) started about the end of 1952, and is designed to embrace as many as 2,000 houses, shops, etc. It will be a community in itself with schools, markets and modern amenities. Surveys carried out before any work began showed the presence of the malarial vector (*A. maculatus*). The plans were carefully scrutinized and the area was continually kept under observation in order that permanent anti-malarial drainage could be carried out early where necessary.

151. There has been progressive use made of temporary oiling measures. In addition to this particular housing estate and outlying islands previously mentioned, further new areas of development have been brought into the regular control system.

152. Mention must be made here of the large area (six square miles) which is being controlled by means of permanent measures in the construction of the new International Airport in Paya Lebar. Further besides the extensive use of anti-malarial insecticides close supervision of the labour force is maintained. Cautious searches are made for any gametocyte carriers by blood film examinations.

153. Residual spraying was carried out at six monthly intervals in the following islands—Pulau Sudong, Seraya, Semulon, Lazarus and Seking. B.H.C. and D.D.T. were used widely for this purpose, and, in view of the nature of the work, oilers have been specially trained. The aim is to ensure that the optimum dose of these insecticides is applied uniformly to all indoor surfaces of buildings.

154. Ten new probationary technical subordinates were recruited and training was started at once on all aspects of anti-mosquito measures. Only after satisfactory completion of the training are new recruits permitted to undertake rural district work. Twenty-six students attending the Royal Sanitary Institute course received practical demonstrations both in the field and in the laboratory. Fresh and mounted specimens were prepared as an aid to instruction in entomology, bacteriology, protozoology and helminthology.

155. One more significant event in the year has been the institution of an anti-aedes campaign. This consists of daily collections by district larval checkers. 586 collections have been made and identification completed in the laboratory. It has been found that most of these collections contained aedes fasciata and aedes albopictus. Suitable control measures followed wherever practicable and necessary.

Sewage and Refuse Disposal

156. The presence of flies is not a serious problem in the Colony, but the intrusion of modern development schemes into areas containing long-standing vegetable gardens and piggeries, etc., has resulted in greater consciousness of their presence though the numbers are relatively few. The use of prawn dust as a fertilizer for vegetable gardens perpetuates and aggravates fly nuisance. Moreover the insanitary conditions found in pigsties increase potential fly-breeding places. Other sources of fly nuisance arise from fowl pens, absence of sanitary latrines and inadequate drainage. These are the conditions against which the health authorities must contend if there is to be a lessening of the trouble. Fly control measures consisted of space spraying with B.H.C. (Gammexane Dispersible Powder P520), better disposal of nightsoil and domestic refuse, the prohibition of prawn dust as manure, and encouragement

of the use of compost instead. Despite all these measures there is still great difficulty in eliminating breeding grounds in the vegetable beds and pigsties. It was found that B.H.C. was not so effective against houseflies. Further laboratory and field experiments are being undertaken.

Scavenging

157. The same arrangements still exist as indicated in the report of 1952. Removal of refuse is confined to definite gazetted areas. As necessity arises it is extended to new housing and factory estates, as well as areas of resettlement.

158. At present scavenging is confined to removal of domestic refuse only. The removal of trade refuse will have to await the establishment of a new Town Cleansing Section for the Rural Board.

Conservancy

159. A contractor bucket system as in scavenging still remains the main method in control. No change is envisaged until the new 'Cleansing Section' begins to function. The attitude of the general public towards this antiquated system is reflected in the increasing popularity of the chemical type of closet. The Health Department has fostered and encouraged this procedure.

160. Opportunity was taken during the year to devise a low cost type of septic tank. With the assistance of a World Health Organization consultant and full co-operation from a large industrial firm, final details were concluded and the model is now undergoing practical tests.

161. Full consideration has been given by the Rural Board to the extension of the City Sewerage System to the Rural Areas.

WATER SUPPLY

162. Whilst rapid housing development has taken place throughout the Colony and, in particular, the Rural Area, during the past few years, the availability of pipe water has not kept similar pace and the gap between supply and demand it still wide. Nevertheless it is becoming increasingly available throughout the island and further extensions are being energetically pursued. Almost all the major roads in the rural districts have now water mains, and every effort is being made to bring the same facilities to the few remaining exceptions.

163. Because it is not possible in many cases for economic reasons to install a piped water supply in houses, more attention is devoted to the provision of more public stand-pipes. To ease the situation the Health Department has provided, where possible, satisfactory water supply from anti-malarial drainage works as the department aims at eliminating the needs for and the use of shallow wells.

164. Number of communal anti-malarial wells and wash wells in rural districts are now as follows:—

	Wash Wells	*A.M. Wells*
1. Bukit Timah	31	20
2. Bukit Panjang	16	1
3. Pasir Panjang	8	8
4. Bedok	6	1
5. Changi	15	5
6. Serangoon	33	2
7. Sembawang	16	—

165. The situation on the main island of the Colony can be considered reasonably satisfactory, but the same cannot be said for a number of the small outlying islands. Their problems do not lend themselves to easy solution. The health policy is one of conservation of water whether dealing with existing wells or the creation of new sources. However some of the islands possess physical features which defy the maintenance of an adequate natural water supply. In past years it has been necessary during the drier periods of the year to import water from elsewhere into these areas. This is a serious handicap which is receiving constant consideration with a view to some better solution.

OFFENSIVE TRADES

166. All offensive trades in Rural Areas are governed by regulations and Specific Statutory Provisions under section 211 of the Singapore Municipal Ordinance (Chapter 133). Regular inspections are made. When problems involve particular working hazards or the disposal of industrial wastes, joint consultations are held and inspections are made with the staff of the Department of Chemistry. Advice and assistance is freely offered to the management of all industrial concerns. Generally the response of the industrialists is one of co-operation. The real difficulty is found in the attitude of those responsible for the smaller factories. Many of these were ill-planned originally, and conditions in them have deteriorated considerably. They continue to be a great menace to the workers as well as a source of nuisance to the general public.

167. Closely linked to the problem of unhealthy working conditions is that of housing accommodation for the workers. With comparatively few exceptions the owners of industrial premises devote very little attention to this matter. Where attempts are made to do so it is often more perfunctory than otherwise. For the most part then, the individual worker is left to his own devices and the whim of landlords in his search for accommodation.

168. It may seem strange to those unfamiliar with the history of industry in this Colony to find a natural expectation on the part of the employees for accommodation to be supplied by the owners. This, however, has been a long established custom. There are signs of change nevertheless, and the erection of large blocks of flats by the Singapore Improvement Trust is timely. The Princess Elizabeth Estate development is a model where large trading concerns, recently established, exist side by side with a large neighbourhood unit. This scheme compares very favourably with similar ones in the United Kingdom, e.g. Slough and South Wales.

169. The policy of the Rural Board regarding industrial zoning is beginning to show full effect at last. Very few applications were received during the year for erection of factories in residential areas. Newer industries are being steadily introduced in the Colony and of these the more notable are the Malayan Textiles Company and Asbestos and Polish factories. The industrial processes require careful study and investigation of the possible health hazards to the workers. There has been a healthy recent tendency on the part of most industrial managements to equip their factories with modern machinery and to establish sanitary methods.

170. Last year's report indicated the need for a specific inspectorate for industrial purposes. This matter has received further consideration and it is hoped that in the near future some such scheme will be established. Meanwhile lack of staff and the absence of completely satisfactory legislation for the control of non-offensive trades have impeded progress. To meet the deficiency to some extent; a senior sanitary inspector was assigned to this type of work.

His value has been enhanced considerably by close co-operation with and full assistance from the University division of Social Medicine and Public Health and the Department of Chemistry.

Number of Inspections

Cattlesheds and Dairies	2,185
Piggeries	8,021
Sago Factories	270
Canning	378
Edible Oil Factories	324

HOUSING

171. This forms a major feature of rural health work in Singapore because of the problem it presents. The continued and rapid increase in population, and the corresponding expansion in trade and industry has resulted in the need for more dwelling houses and accommodation. A considerable number of large housing estates were started during the year. In addition there were a large number of industrial and private applications for building permits.

172. The housing shortage from the health point of view is related particularly to the lower salaried members of the public. An encouraging feature is the increased number of low cost housing schemes although there has been some decrease in building tempo as compared with previous boom years. Probably the tendency to speculation in boom years is giving way to stabilized development in this non-boom year.

173. The general picture of rural housing is very clearly marked by movement and dispersal of families from the more congested and built-up areas to the open spaces outside the City boundaries.

174. Reference has been made to the large number of buildings constructed during the year. While most of these have the blessing of the local authorities, there were still many unauthorized erections. The Housing Authority, namely the Rural Board, acted energetically in such cases and as a result improvements were effected in most cases. Totally unsuitable buildings were demolished.

175. A working policy adopted by the Health Department is now beginning to bear fruit. This is the substitution of lock-up shops with domestic accommodation above in place of the traditional unhealthy one-storey shophouses.

176. There has been a significant extension of building activities by the Singapore Improvement Trust to the Rural Areas. This has resulted in a number of large blocks of modern flats. The Trust has also introduced the community housing idea with the result that the householders are situated within easy distance of working places, shops and other essential amenities.

FOOD IN RELATION TO HEALTH AND DISEASE

177. The Association of food and health is of paramount importance amongst all communities, and particularly so in Singapore, where most of the population depend on others for the provision and preparation of their food needs. Consequently difficulties arise from the presence of such large numbers of eating houses, stalls and itinerant hawkers. In consequence under section 199 (1) of the Municipal Ordinance (Chapter 133) much of the time of the rural district sanitary inspector is engaged in the supervision and inspection of

food premises and manufacturing places. Difficulties are experienced with regard to these as they are situated in many cases in remote places. To overcome this, and to make the Food and Drugs legislation more effective a senior sanitary inspector has been assigned specifically to this field of work. Systematic inspections were carried out of all food stores and associated premises, and regular sampling and analyses were undertaken. A hopeful sign is noted through the appearance of up-to-date food producing factories. Problems still remain with the older establishments concerned in the production and supply of such foods as milk, meat, bread and vermicelli.

178. Further marked improvement has arisen as a result of the new policy and regulations of the Rural Board with regard to stalls, markets and hawkers. An ambitious scheme for the establishment of more government markets is well under way, and advanced training of market inspectors has taken place.

179. Specific areas have been allocated for the better control of hawkers. Results are already apparent in the district of Serangoon, Bukit Timah and Bukit Panjang where Rural Board markets have or are being established, and the hawkers given specific pitches.

180. Much assistance has been obtained from the health committee of the Rural Board and the various district committees.

FOOD INSPECTIONS, 1952

Food Preserving Factory	416
Milk Vendor	1,663
Vermicelli	1,242
Bakeries	1,725
Ice Cream Stores	486
Aerated Water Factories	162
Coffee grinding	540
Markets	2,790
Hawkers and Fishmongers	17,970
Eating Houses and Coffee Shops	17,394
Butcher Shops	39
Groceries	622
Stalls	5,562

CHAPTER EIGHT

MATERNITY AND CHILD WELFARE SERVICE IN THE RURAL AREA

181. This service is conducted along lines similar to those prevailing in such countries as United States of America, United Kingdom and New Zealand. Unlike these countries with their amply distributed medical practitioner service, the rural population of the Colony relies for the most part on the medical and health facilities available at the many excellent clinics strategically sited for their benefit. The trouble is that there are still not enough of these and the fact that many are still housed in quite unsuitable premises makes it difficult to obtain and retain staff and to attract the still suspicious population. While this suspicion is a mixed blessing in that the way is still open for the establishment of a sound preventive outlook amongst the rural population and full use is made of this opportunity by attracting the parents through stimulation of their curiosity as well as engendering the conviction that the service provides plentiful health gifts for themselves and the children, its ill effects are exemplified by the too ready reaction to malicious propaganda outlined below which resulted in a serious reduction of attendances in these districts during the year with a considerable effect on the total annual returns. A distinct rise in the standard of this service has been noted during the present year. This is associated no less with the four fine new clinics made available in 1953 than with the better trained staff of nurses and midwives now available. In addition, mention must be made of the valuable help of the World Health Organization midwife tutor-consultant attached to Kandang Kerbau Maternity Hospital, and the closer links between the Maternity Hospital and the rural clinics. A scheme now exists which permits those engaged in hospital and in domiciliary midwifery to be interchanged at intervals. During the year an opportunity was taken to provide a series of refresher courses for the health sisters and nurses by enlisting the help of the World Health Organization consultant, the Health Education Officer and other departmental officers. Such departmental training is of immense practical value. It will be continued and extended still further during 1954 to include the midwives. Satisfactory progress has therefore continued with the numbers and training of staff and the clinic accommodation.

182. Reference has been made to the completion of new clinics. There were four altogether. One of these is noteworthy for the fact that it was the first permanent modern building constructed for its purpose on an outlying island—Pulau Tekong. Besides providing facilities as a clinic it houses a dispensary and bed accommodation for six persons. In this way an excellent service is now available on the spot for an estimated island population of some 3,000 persons. Two of the remaining three are prototypes of those already existing at Nee Soon and Holland Villages. They have been sited at Thomson Road, 5½ milestone, and at Lim Ah Pin Road. A new departure is that the latter operates in conjunction with a community centre which is in the nature of an experiment, centralizing and welding various welfare services into a closely bound unit. This should result in close liaison and working harmony between the staff of the Social Welfare, Medical, Labour and Education Departments plus full co-operation of the District Committee Council.

Already use has been made of the auditorium and library in the Community Centre for the purposes of a health education programme. The fourth clinic, unlike the other three provided by Government funds and constructed with permanent materials, is semi-permanent in structure and is the result of voluntary effort. The district committee is to be congratulated on its enterprise in completing this subsidiary centre. It is a valuable contribution and eliminates the part-time use of a shop-house as a clinic for the 2,000 inhabitants of the village of Tuas.

183. On the main Island of Singapore there are now twelve main centres with resident nursing staff, eight subsidiary centres with resident midwives and twenty-four temporary centres where Welfare Clinics are conducted by staff from the main centres. Two lady doctors are employed full time and attend regularly at the various centres. Still other centres are situated on the outlying islands. These include three residential midwife centres, one combined nurse and midwife centre and seven visiting centres. Construction of five more nurses and midwife centres will take place in 1954.

184. With the further completion of two more major centres each of the seven Rural Administrative Districts will contain a main unit. The design of these has been carefully arranged to permit of their later development into all-purpose rural health centres. Besides offering facilities for maternity and child welfare, and a school health service they will provide accommodation for laboratory, dispensary and specialist services.

185. During the past few years consideration has been increasingly given to the need for dental services. These are now being extended to the rural women and children. A start was made in August this year by using the facilities present at existing health centres. This free dental service is restricted as yet to a few areas on the west side of the Colony. Progressive expansion is planned however so that more centres will be established during the coming year.

186. The establishment of this service in the Rural Area has eliminated the opposition to dental treatment from patients who formerly had to travel long distances to the General Hospital.

187. Health sisters are responsible for the supervision of all Government and private midwives in their areas. This includes monthly inspection of their equipment. In this way better working harmony and closer bonds exist between the clinic staff and the private midwife. The domiciliary midwifery 'circle' has thus been widened and strengthened. Every encouragement is given and opportunity used to get these midwives to attend all antenatal and post-natal clinic sessions.

188. A distinct handicap to the value of the antenatal service provided is still the marked tendency for the women to delay their first visit to the clinics until the last month or two before term. Antenatal care includes the administration when necessary, of vitamins, calcium, liver extract, and free milk. Arrangements are made for admission of cases with severe anæmia to the Kandang Kerbau Maternity Hospital. The midwives deal with normal deliveries and enlist the help of the health nurses only in an emergency.

189. Every facility is available for full post-natal care but once again certain obstacles present themselves. They are based entirely on ignorance. For instance, considerable resentment has been shown against the use of instruments in the course of vaginal examination. At one time the rumour was rife that internal examinations were conducted for purposes of sterilization. In spite of these difficulties however the battle for confidence and trust is being won

as can be seen from the statistics. Examination of blood for Wasserman and Kahn tests are a regular routine—again, suspicion and prejudice was evident in the initial opposition to the introduction of this procedure. It was said that weakness resulted from the blood loss and also that the blood itself was used to supply the Blood Bank. Since the Social Hygiene Department offered its service at the rural clinics there has been a noticeable reduction in congenital syphilis.

190. Within limits, the maternity and child welfare clinics afford treatment for all minor ailments. Despite the numerous difficulties confronting the staff and the insanitary living conditions of many rural families, it has been noted that babies attending the clinics regularly are quite healthy. Breast feeding is the rule in the Rural Area. This rural maternity and child welfare service now covers all the rural births from the domiciliary and clinic points of view in that 8,192 deliveries were actually dealt with by the Government staff in their homes over the year with 46,388 followed up. The remaining births in the Rural Areas were either delivered by private midwives or not reported until the birth had taken place. 455 were sent to hospital because of some abnormality.

191. This report of the Maternity and Child Welfare Services would be incomplete without due recognition of the very considerable help given and close interest shown at all time by the Rural Board.

MATERNITY AND CHILD WELFARE SERVICE

Staff	
Lady Health Officers	2
Matrons	2
Health Sisters	6
Health Nurses	12
Midwives	43
Health Attendants	31

STATISTICS OF MATERNITY AND CHILD WELFARE WORK DURING 1953

Number of Sessions	2,355
Infants 1st visits	12,717
Infants re-visits	69,162
Children over one year	32,458
Antenatal Clinic attendances one visit	10,883
Antenatal Clinic attendances re-visits	23,717
Births attended by Government midwives	8,192
Births attended by private midwives	4,205
Mothers sent to Kandang Kerbau Hospital	455
Home visits by Health Nurses	53,302
Home visits by Government midwives	46,388
Post-natal mothers	4,235
Primary Vaccinations	10,154
Anti-Diphtheria Immunization	
Total number actually protected up-to-date	15,781
Free Milk Distribution	
Number of pounds of milk to mothers	3,447
Number of mothers receiving milk	3,777
Number of pounds of milk to children	23,116
Number of children receiving milk	23,979
Powdered milk given in pounds	25,664

Vital Statistics for the Rural Areas

Population (mid-year)	320,073
Total Deaths	2,611
Crude Death Rate	8.5 per mille
Total Births	15,242
Crude Birth Rate	47.6 per mille
Still Births	187
Still Birth Rate	12.4 per mille live births 12.3 per mille total births
Infant deaths	842
Infant Mortality rate	55.2 per mille live births
Maternal Deaths	16
Maternal mortality rate	1.05 per mille

Rural 1953

Neo-Natal deaths	299
Neo-Natal death rate	19.8 per mille live births.

Maternity Work

192. Mothers attend the chief centres of the rural service for antenatal care. They are given a general examination plus an obstetrical examination on their first visit to the doctor. They are then advised where and when to attend regularly. Any abnormalities found are treated and they are supplied with vitamins, iron, calcium, and milk if necessary.

193. Cases that cannot be treated as out-patients are referred to the Kandang Kerbau Maternity Hospital for admission.

194. Most of the actual work in the field in the Rural Area is dealt with by Government midwives, as very few private midwives practise outside the town except in the Upper Serangoon, Lorong Tai Seng and Yio Chu Kang areas. A total of 8,192 confinements were attended by our midwives during the year compared to 4,205 by private midwives. Out of a total of 12,397 births, 455 cases were sent to hospital. Owing to the location of many squatters' huts and deficiency of proper roads and transport, it will be obvious that a proportion of babies must continue to be born before the actual arrival of the midwife. Following the birth, the midwife visits daily, nursing the mother and bathing the baby for an average of one week. Action is taken to visit all babies born in rural districts.

195. The health nurses pay a routine visit to the patients' homes once during the puerperium to see and give advice to all mothers. If there is any abnormality, the doctor is informed and she will if necessary attend to the case herself at the patient's home.

196. When the baby is forty days old the mother brings the baby to the clinic for infant welfare care. At the moment no routine post-natal examinations are given to all mothers, but any mother who complains is examined and treated by the doctor.

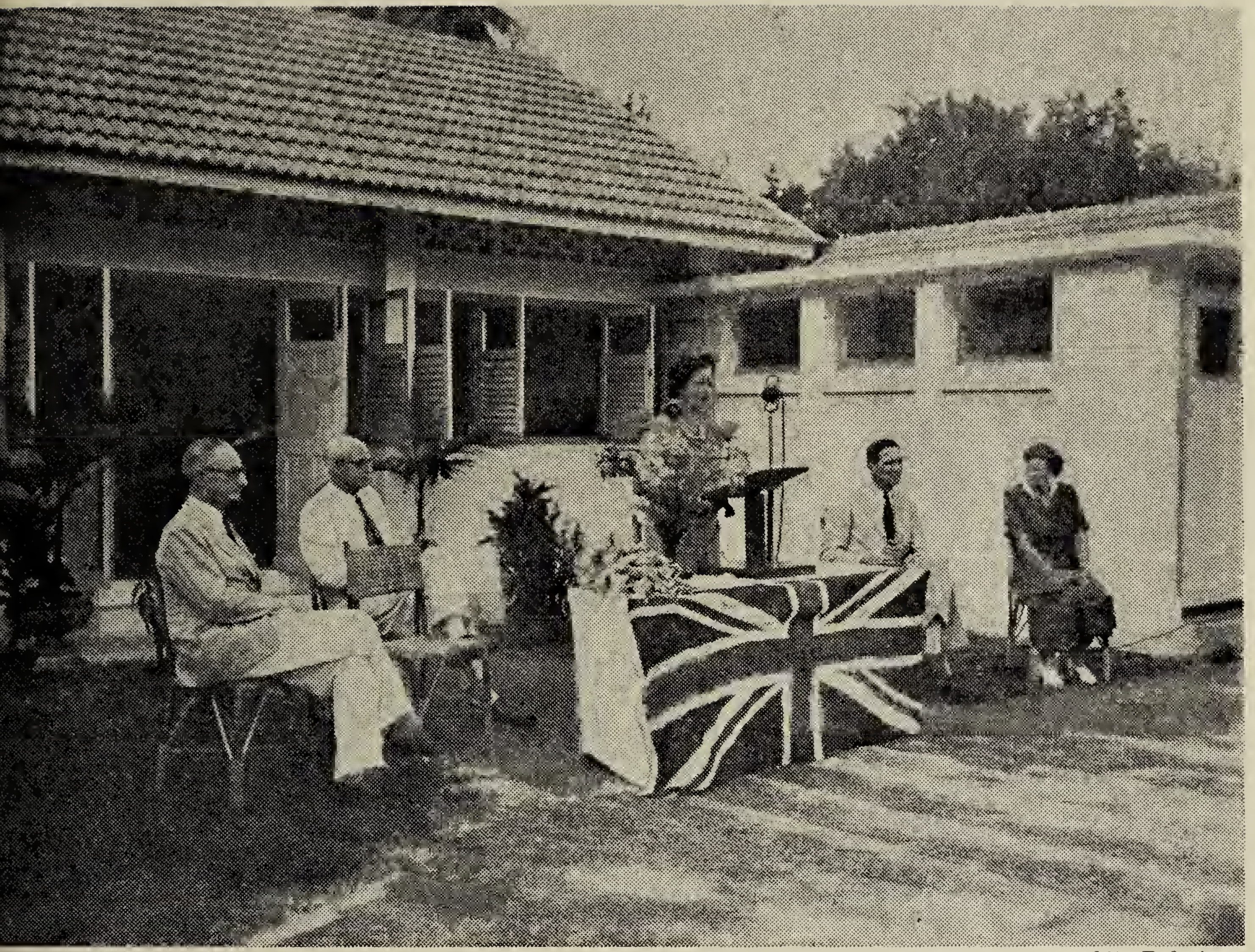
197. There were 10,883 first antenatal visits and 23,717 re-visits to the clinics with 46,388 nursing visits by midwives to mothers and infants. 53,302 homes were visited by the health nurses.

Infant Welfare Work

198. Mothers are advised to bring their babies regularly to the clinics. Here they are taught how to feed, to clothe, to educate and to bring up their babies properly. Some are still very unco-operative, often doing the opposite of what is advised: others continue to regard the centres as out-patient departments, bringing their babies only when they are seriously ill. Thus a certain amount of treatment is carried out in all the centres. Common ailments are cough, cold, fever, diarrhœa, worm infestation, otorrhœa, anæmia, undernourishment due to improper feeding, and scabies and other skin infection (chiefly due to secondary infection of mosquito bites or ant bites and uncleanliness).

199. A total of 2,355 sessions were held at the various clinics, 12,717 infants under one year and 32,458 children from one to five years were seen.

200. Prophylactic work is carried out at the clinics against small-pox, diphtheria and tuberculosis.



Public Relations

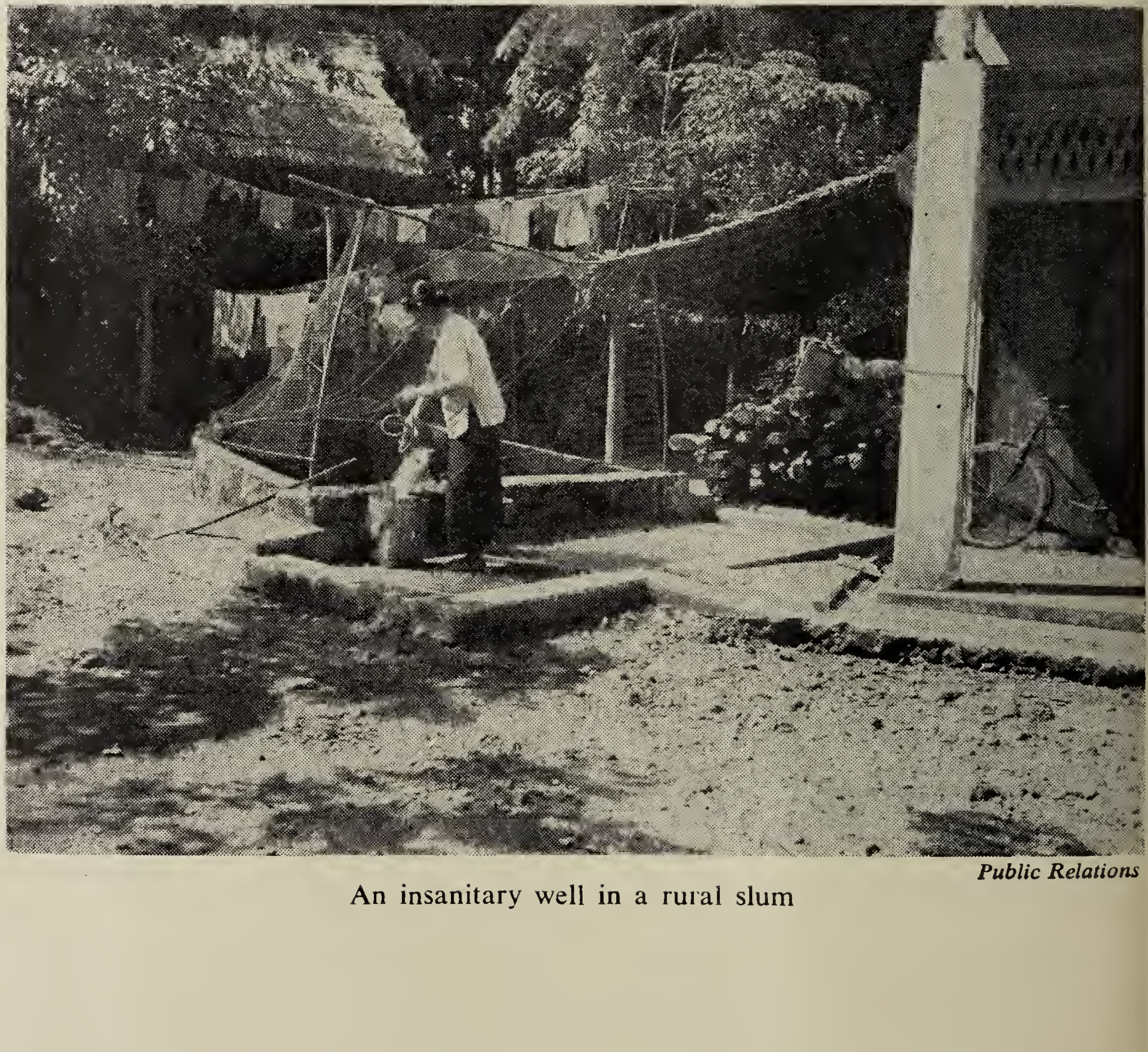
The opening of another Maternity and Child Welfare Centre

Public Relations

In a Maternity and Child Welfare Centre

Public Relations

Crowding of patients around a Travelling Dispensary



Public Relations

An insanitary well in a rural slum

CHAPTER NINE

DISPENSARY SERVICE

201. There is a pardonable inclination to discuss the more spectacular aspect for any service. This is reflected in the accent given to the operation ‘Floating Dispensary’. In addition to its merits as a spectacle, this vessel has acquired new rewards in the spontaneous welcome extended by the islanders and the inhabitants of areas of the Colony difficult of access by road at its approach to their shores. Nurses, midwives, hospital assistants and even the crew are regarded as friends visiting friends.

202. Full recognition must also be given to the continued satisfactory service of the travelling (motor vehicle) dispensaries. Full use was made of their presence, it will be remembered, in the successful island-wide vaccination campaign during 1952–1953. The function of these is to provide as complete a service as possible for the outlying population in the rural areas and the Rural Board District Committees have co-operated very actively in their use. Continuous and careful study and assessment of local needs has resulted in a revision of schedules and alteration of itineraries from time to time, thus extending this service to more and yet more isolated and needy places. Four motor dispensaries are now in full and continuous operation.

203. In addition six static dispensaries are located in the more populous rural districts and a medical officer was appointed to live in and cover one such area.

204. During the year this service recorded 36,860 attendances with 24,790 new cases.

CHAPTER TEN

PORT HEALTH AND QUARANTINE

205. Singapore ranks as one of the major seaports in Far Eastern waters and stands high in the list of the world's great ports. There is a continuous flow of ships into its harbour from all parts of the world. Many of these vessels carry large numbers of passengers and every precaution has to be taken to ensure that no case of major infectious disease is allowed to enter the Colony. It is for this reason that the quarantine procedure practised successfully for so many years remains in force.

206. The geographical position of Singapore and its large traffic with neighbouring infected or suspected countries renders it particularly vulnerable to the entry of quarantinable disease. It is to the credit of the quarantine defence system and the industry of the port health staff that no major infectious disease was imported into the Colony during the year.

207. In June, 1951, the fourth World Health Assembly adopted the new International Sanitary Regulations on quarantine procedure. In making these new rules full cognisance has to be taken of the peculiar local position of the Colony today. In consequence local procedure has to receive particular attention.

208. Experience at ship inspections of passengers has revealed a considerable number of health certificates of questionable validity. Indeed there have been occasions when passengers with authenticated health certificates of protective inoculation have arrived either suffering from the quarantinable disease or have developed the disease shortly afterwards.

209. This background of recorded facts serves as a relief against which the health authorities view the necessity for the maintenance of its adequate quarantine safeguards. It also assists the appreciation of the following statistical summary of the work carried out during the years 1951, 1952 and 1953.

	1951	*1952*	*1953*
Number of ships inspected and cleared ...	1,979	1,469	1,614
Tonnage (nett)	5,650,059	5,230,812	5,603,702
Number of passengers inspected on ships at the Quarantine Anchorage:—			
(*a*) landing	86,623	43,677	35,177
(*b*) in transit	50,948	43,127	44,536
Number of passengers quarantined on St. John's Island	28,320	26,314	22,640
Number of Bills of Health issued	9,080	7,411	7,771
Number of ships issued with fumigation certificate	90	112	100
Number of ships issued with deratization exemption certificates	291	281	279
Number of rats destroyed during fumigation and examined bacteriologically:—			
(*a*) destroyed	696	1,163	1,427
(*b*) examined	189	74	459
Vessels visited to inspect corpses	18	14	14
Permits issued to import, export or tranship coffins containing remains	78	208	46
Pilgrims' ships with pilgrims:—			
(*a*) ships	3	3	6
(*b*) pilgrims	2,121	2,351	1,837

	1951	1952	1953
Certificate to accompany goods	386	313	273
Disinfection of infected vessels	1	—	—
Inspection of Bum Boats	129	101	97
Inspection of Water Boats	10	13	14
Vaccinations and inoculations performed at North Canal Road Dispensary:—			
(*a*) small-pox vaccinations	11,942	10,294	10,324
(*b*) cholera inoculations	14,843	11,342	10,515
(*c*) T.A.B. inoculations	164	128	98

210. Whilst a large number of ships arrived at the quarantine anchorage during 1953 fewer passengers were inspected than previously because of the new Immigration Laws which became effective in the Colony on 1st August, 1953.

211. The problems usually associated with the 'pilgrimage season' were of less importance than usual because of the improved organization and arrangements made by the pilgrim officer and the Singapore Harbour police authorities. All the pilgrims had to have medical examination, and to be in possession of the requisite health documents before embarkation.

212. It has long been a source of grave concern that sufficient attention cannot be given to the very numerous small ships of less than 90 tons which ply constantly between Singapore and the neighbouring territories. This serious gap in the Coony's quarantine barrier has been improved by the appointment of an experienced sanitary inspector who conducts the necessary health inspections. The increase in strength of staff permitted his secondment to the immigration depot whence he works in close association with the officials concerned.

213. The total number of passengers admitted during the year amounted to 22,640.

Their racial distribution was as follows:—

	1951	1952	1953
Chinese	14,520	5,591	8,091
Indians	12,813	19,927	14,525
Malays and Indonesians ...	908	739	4
Others	79	57	20

CHAPTER ELEVEN

AIR HEALTH

214. This part of the health service forms a very vital link in the quarantine chain. With the passing years and the growing importance of Singapore as an air centre it is becoming increasingly prominent.

215. Already there are thirteen air lines with branches or agents in the Colony, and more use continues to be made of the airport facilities. A significant rise in the volume of air traffic has occurred over the last twelve months, and this trend will be enhanced without doubt when the new airport comes into view at Paya Lebar just outside the City. The new Immigration Laws appear to favour an increase still further in the number of passengers travelling by air.

	1952	*1953*
Total number of aircrafts inspected	1,230	1,321
Total number of passengers and crew inspected ...	35,028	40,374
Total number of passengers put under surveillance	510	69
Total number of planes disinfected	Nil	Nil

216. An important 'Virus' conference with special reference to yellow fever is to be held at the Institute for Medical Research at Kuala Lumpur in the Federation of Malaya early next year when no doubt the question of the dangers of air travel under similar conditions will come under critical review.

CHAPTER TWELVE

THE ISLANDS

217. The number and distribution of the outlying islands present problems and difficulties hampering their absorption into the general scheme of welfare services. Nevertheless with experience gained particularly during the past few years, an efficient service is rapidly being established. Already the islanders receive regular attention from the Maternity and Child Welfare staff, Rural Health staff and where necessary the School Health staff. These are in addition to the well-established dispensary service maintained through the use of the launch *Tengku Hussein.*

218. As a result of the combined efforts of the various sections more and more people in the islands are making use of the available services. In particular the Floating Dispensary started three years ago is considered as a personal benefit by the island population. Indeed it has been necessary to extend its itineraries to include more distant places. A noticeable change of attitude is now apparent in the people's reaction towards western medicine and methods.

219. Fear has been replaced by confidence. This is reflected in the overall improvement of the general state of health. However, there still remains the problem of vitamin deficiency. This is due partly to ignorance and dislike for certain foods and the inability to grow vegetables on certain islands.

220. The main diet consists of rice and fish. Supplements of vitamin tablets, minerals, cod liver oil and milk are freely offered. This assistance is particularly necessary since most of the wage earners have meagre resources and rely for their livelihood on fishing.

MATERNITY AND CHILD WELFARE

221. This service pays regular visits to the islands, and the staff as well as conducting the usual clinic sessions also supervise the conduct and training of the private midwives. To make their task easier, construction of new temporary premises were started on a number of islands during the year. These will augment the existing well-founded centres on such large islands as Pulau Ubin, Pulau Brani and Pulau Tekong. Other facilities and benefits will accrue with the operation of a second Floating Dispensary by the department. Plans for this new vessel are well advanced and it is hoped that it will be commissioned before the end of 1954.

222. The water problem has been previously reviewed in the section dealing with water supplies for the Rural areas. It is particularly prominent in the case of outlying islands. A number of them are small in size and their topography does not allow the satisfactory maintenance of a constant natural supply. This applies especially during the dry season. It has been found necessary on occasions to import water from other sources in the Colony.

223. Every effort has been made by the department to create more adequate arrangements. Under-drainage is utilized whenever possible and experiments have been carried out with a view to conservation of all available water on the island for domestic use.

WELFARE ON PRINCIPAL ISLANDS IN THE VICINITY OF SINGAPORE

Name of Island	Population at 1952 Census	Schools	School Children		Infant Welfare and Maternity Clinic	Medical Dispensary	Anti-Malarial Work	Water Supply	Ketuas
			Boys	Girls					
Mukim XXXIV: Penghulu: Awang Chik bin Gomo									
Pulau Seraya ..	(approximately 260 —1952)	School erected by people of the Island with materials provided by Government. Teachers paid by Government	13	11	Weekly visit since 1951	Mobile Dispensary calls at Tanjong Kling once a week but people from the Island seldom go there for medicine	Nil.	Deepening, Lining and Improvement of Wells	Abdul Hamid bin Juma'at
Pulau Semulon	(approximately 330 —1952)	Go to Tanjong Kling School	..	..	Weekly visit by Floating Dispensary and Fortnightly visit by I.W.C.	do.	Nil.	A standpipe has been erected on the mainland to supply drinking water	A. Ghani bin Mohd. Tapor
Pulau Damar Laut .. Pulau Damar Darat ..	126	do.	..	..	Twice a month at Tanjong Kling by I.W.C.	Mobile Dispensary at Tanjong Kling once a week for medicine	Nil.	2 standpipes available at Tanjong Kling	Ahamd bin Yunos (lives at Tanjong Kling)
Pualu Ayer Merbau ..	69	Nil.	..	..	Three weekly visits attend at either Tanjong Kling, Semulon or Seraya	Nil.	Nil.	Wells	Rapin bin Lembeng
Pulau Ayer Merlimau ..	86	Nil.				Nil.	Nil.	do.	Rapin bin Lembeng
Pulau Ayer Chawan ..	39	Nil.				Nil.	Nil.	do.	Rapin bin Lembeng
Pulau Pesik ..	20	Nil.				Nil.	Nil.	do.	Rapin bin Lembeng
Pulau Sekera ..	18	Nil.				Nil.	Nil.	do.	Rapin bin Lembeng
Pulau *Sebaros* (Seburos) and other islands uninhabited	4	Nil.	..	..	Go to Seraya	Nil.	Nil.	Take water from Pulau Seraya	Abdul Hamid bin Juma'at
Mukim XXXIV: Penghulu: Awang bin Mohamed									
Pulau Bukom Besar (Shell Co.)	2,822	School housed in an A.P.C. building and teachers are paid by the company	159	68	The Shell Company have their own	The Company have their own	Oiling by A.P.C. some permanent drainage	The A.P.C. have their own water supplied by water-boats	Awang bin Mohamed

WELFARE ON PRINCIPAL ISLANDS IN THE VICINITY OF SINGAPORE—*continued*

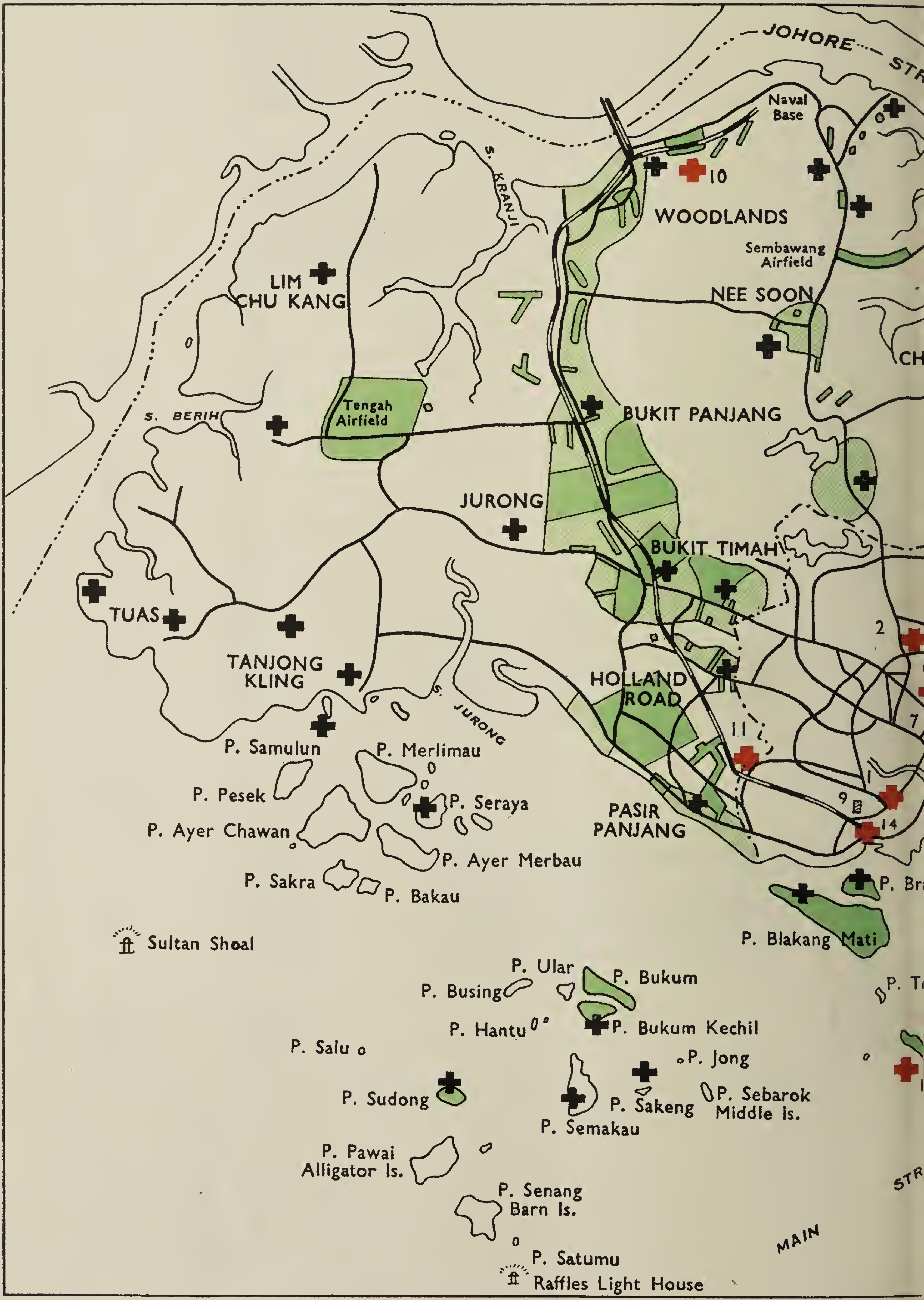
Name of Island	Population at 1952 Census	Schools	School Children		Infant Welfare and Maternity Clinic	Medical Dispensary	Anti-Malarial Work	Water Supply	Ketuas
			Boys	Girls					
Pulau Bukom Kechil . .	(approximately 550 —1952)	School built by inhabitants. Teachers paid by Government	27	25	Every week by Floating Dispensary since 1951	Medicine supplied by visiting nurse and Hospital Assistant	Permanent Works	4 A.M. Wells	Awang bin Mohamed
Pulau Sudong . .	(300—1952)	School erected by Kesatuan Melay and maintained by Government. Teachers paid by Government	27	15	Every week by Floating Dispensary since 1951. Every 3 weeks by I.W.C.	Teacher has a stock of medicine supplied by G.H.Q.	2 A.M. drains D.D.T. spraying 1952–1953	2 Wells	Bendol bin Bengol
Pulau Semakau . .	(246—1952)	School erected by inhabitants. Teachers paid by Government	26	18	do.	Medicine supplied by visiting nurse and Hospital Assistant	D.D.T. Spraying 1952 to 1953	5 Drums	Jalil bin Kerip
Pulau Seking . .	(173—1952)	Nil.	20 children		do.	do.	Permanent Works	A.M. Wells	None
Pulau Pawai . .	(300—1952)	Nil.	. .	. .	Nil.	Nil.	Nil.	Earth Wells	Bendol bin Bengol
Pulau Sebarok* . .	3	Nil.	. .	. .	Nil.	Nil.	Nil.	Well Water	Bendol bin Bengol
Pulau Senang . .	3	Nil.	. .	. .	Nil.	Nil.	Nil.	1 drum	Bendol bin Bengol
Pulau Sekijang Pelepah and others uninhabited	. .	School erected by inhabitants. Teacher paid by Government	12	18	According to the Penghulu people from Sekijang, Pelepah obtain their medicine and other health facilities from Sekijang Bendera, the Quarantine Station	Nil.	Extensive A. M. drainage	Good Well Water (A.M.)	Khairan bin Haji Ahmad

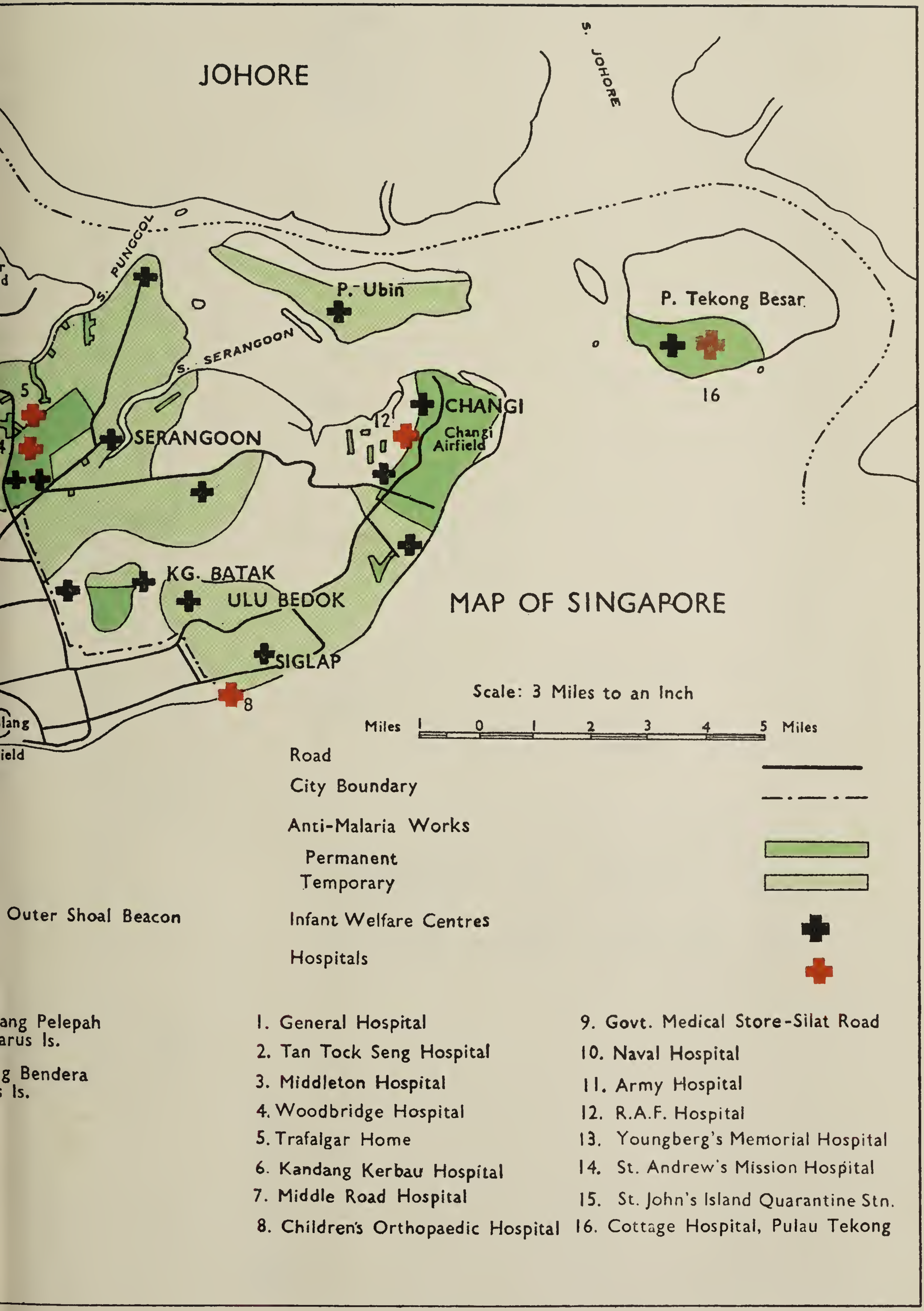
* S.V.O.C. Installation. They made their own arrangements.

WELFARE ON PRINCIPAL ISLANDS IN THE VICINITY OF SINGAPORE—*continued*

Name of Island	Population at 1952 Census	Schools	School Children		Infant Welfare and Maternity Clinic	Medical Dispensary	Anti-Malarial Work	Water Supply	Ketuas
			Boys	Girls					
Mukim XXXIII: Penghulu: Tunku Ahmad bin Tunku Sulong									
Pulau Tekong and Pulau Tekong Kechil	(approximately 4,000 now)	(1) Government Malay School adjoining Police Station Kg. Selabin	85	20	*Infant Welfare* A. Govt. midwife resides on Island in	Drugs by visiting Staff	Extensive Permanent Works plus oiling	Wells. The supply of water on this Island is good and plentiful. A. M. Wells have been bulit by Govt. and those meant for purposes other than drinking are enclosed by brick walls	None at the moment but the Penghulu intends applying for at least one to assist him to do his work in Pulau Ubin
		(2) Malay School built privately on tilted land at Kg. Pasir. Teachers paid by Government	37	34	*Maternity Clinic* In rented building Nurse & Sister visit weekly	Nil.	Nil.	Nil.	—
		(3) There are 5 registered Chinese schools on the Island with an enrolment of 263 pupils including 87 girls. A new school in the centre of the Island has applied for permission to open. This will bring the total to 6 Chinese schools on the Island	176	87	Weekly visit by F.D. accompanied by a Doctor	Nil.	Nil.	Nil.	—

Note:—The above information refers to Pulau Tekong Besar and with the exception of private water supply from wells, there is nothing to be got at "Tekong Kechil". People living here go over by boat to Tekong Besar for everything. There is a "receiving set" at "Tekong Besar" which was supplied by P.R.O. and is now operated by the Penghulus.


JOHORE
STR
Naval Base
10
WOODLANDS
Sembawang Airfield
S. KRANJI
LIM CHU KANG
NEE SOON
CH
Tengah Airfield
S. BERIH
BUKIT PANJANG
JURONG
BUKIT TIMAH
TUAS
2
TANJONG KLING
HOLLAND ROAD
7
S. JURONG
11
P. Samulun
P. Merlimau
P. Pesek
P. Seraya
9
1
PASIR PANJANG
14
P. Ayer Chawan
P. Ayer Merbau
P. Sakra
P. Bakau
P. Br
Sultan Shoal
P. Blakang Mati
P. Ular
P. Bukum
P. Busing
P. T
P. Hantu
P. Bukum Kechil
P. Salu
P. Jong
P. Sudong
P. Sebarok
Middle Is.
P. Sakeng
P. Semakau
P. Pawai
Alligator Is.
STR
P. Senang
Barn Is.
MAIN
P. Satumu
Raffles Light House


JOHORE
S. JOHORE
S. PUNGGOL
P. Ubin
S. SERANGOON
P. Tekong Besar
16
5
SERANGOON
12
CHANGI
Changi Airfield
KG. BATAK
ULU BEDOK
SIGLAP
8
MAP OF SINGAPORE
Scale: 3 Miles to an Inch
Miles 1 0 1 2 3 4 5 Miles
Road
City Boundary
Anti-Malaria Works
Permanent
Temporary
Infant Welfare Centres
Hospitals
Outer Shoal Beacon
ang Pelepah
arus Is.
g Bendera
Is.
1. General Hospital
2. Tan Tock Seng Hospital
3. Middleton Hospital
4. Woodbridge Hospital
5. Trafalgar Home
6. Kandang Kerbau Hospital
7. Middle Road Hospital
8. Children's Orthopaedic Hospital
9. Govt. Medical Store-Silat Road
10. Naval Hospital
11. Army Hospital
12. R.A.F. Hospital
13. Youngberg's Memorial Hospital
14. St. Andrew's Mission Hospital
15. St. John's Island Quarantine Stn.
16. Cottage Hospital, Pulau Tekong

WELFARE ON PRINCIPAL ISLANDS IN THE VICINITY OF SINGAPORE—*continued*

Name of Island	Population at 1952 Census	Schools	School Children		Infant Welfare and Maternity Clinic	Medical Dispensary	Anti-Malarial Work	Water Supply	Ketuas
			Boys	Girls					
Mukim XXXII: Penghulu: Tunku Ahmad bin Tunku Sulong									
Pulau Ubin ..	1,456	The only Chinese school on the Island put up new premises last year costing over $20,000. The new building was officially opened by the Chief Inspector of Chinese Schools this year. This school has an enrolment of nearly 200 pupils of whom 60 are girls	140	60	*Infant Welfare* Visiting Nurses and Sisters visit this Island by Weekly *Maternity Clinic* Nil.	Nil. Weekly visit by Floating Dispensary since 1951 I.W.C. weekly	Oiling and Drainage 1953—House Spraying	Private Wells	Nil. The Penghulu intends applying for at least one to assist him to do his work in Pulau Ubin
Mukim XXXIV:									
Pulau Brani ..		(1) One Government Malay School with 132 boys and 49 girls	132	49	Nil.	Nil.	Nil.	Nil.	—
		(2) One Chinese School with 29 boys and 17 girls	29	17	Nil.	Nil.	Nil.	Nil.	—
Pulau Blakang Mati ..		One Chinese School with 47 boys and 6 girls	47	6	Nil.	Nil.	Nil.	Nil.	—

CHAPTER THIRTEEN

SCHOOL HEALTH

224. This is a Colony-wide service and, so, covers schools situated within the City limits as well as those in the rural areas and on the outlying islands. The very large and increasing numbers of school-age children coupled with the rapid construction of new school buildings has created a very special problem requiring an increasing professional medical staff to cope with it. So far this has not been forthcoming but 1955 should see an improvement in this respect with more and more recently qualified medical officers becoming available.

225. Since 1952 a very noticeable acceleration of the school building programme has been evident. Schools of all kinds have increased in numbers. 15 new Government schools appeared in 1953 and a further 28 are expected to materialize during 1954. Compared with the 494 registered schools in the Colony in 1952 there are now 509.

226. At present the senior school health staff consists of four lady health officers and three male health officers with a senior lady health officer in charge who also supervises the work of yet another lady health officer, engaged in tuberculosis investigation of teachers and students. This is one more than the 1952 total. The junior staff comprises three sisters, eleven staff nurses and one sanitary inspector.

227. Clinic facilities are limited to three special premises. These buildings are too small and were never designed to cope with the amount of work entailed in providing an adequate service for 168,936 registered school pupils. In addition inadequate facilities exist in many of the existing schools for school examinations and inspections. Further complications arise because most of the schools have morning and afternoon sessions, and in many cases adult evening classes also. These difficulties should be considerably eased by the construction of the proposed Urban Health Centre in 1955 which is to house the headquarters of the school medical service amongst other activities. Action is under active consideration to create proper centres in selected schools which can serve as centres for groups of schools in addition to the provision of examination rooms in schools.

228. During the past few years the Government of the Colony has been engaged in the establishment of modern regional English schools throughout the rural areas. The presence of these fine buildings has brought into the health picture many children who for the first time have become acquainted with doctors and medical examinations. The majority of these children come from the lower income-groups. It is inevitable then that such considerable additional numbers of children not previously medically controlled must weigh the scales of health standards in the school population unfavourably since many of the newcomers are found at initial examination to be below par. They appear to show a quick response to the treatment afforded by the school health service, however.

229. The efforts of the staff continue to be confined mainly to school entrants and leavers. Of the 51,302 school children who received a complete medical examination during the year, 28,871 were boys and 22,431 were girls. Those who are familiar with school health work will readily agree that the assessment of the general health of a child is subject to the personal bias

of the actual medical examiner. Nevertheless the examinations did record that some 97 per cent of the girls and 90 per cent of the boys seen would be rated as enjoying good health: quite a satisfactory result under the circumstances detailed above and an improvement on 1952.

Govt. and Govt. Aided Schools	*No. of Schools*	*Enrolment*
English	123	63,271
Malay	37	9,236
Chinese	111	58,586
Indian	21	1,271
Junior Trade School and St. Joseph's Trade School	2	294
Sub Total ...	294	132,658
Private Schools		
English	53	7,732
Chinese	162	20,686
Grand Total ...	509	161,076

Note:—The term "English School" may be misleading to the non-Malayan. It is not meant for the reception of English or European children, but is a school in which the medium of education is the English language and is open to all races and creeds.

Skin Diseases

230. Considerable improvement has been noticed amongst both boys and girls. Only 10.3 per cent of the boys and 31.85 per cent of the girls were detected with skin infections of one kind or another. The commonest skin condition was scabies. This should not occasion surprise when it is realized that so much overcrowding and insanitary conditions still prevail especially in the more densely built-up areas.

Worm Infestations

231. It has long been the fact that a large number of the school children in the rural areas continue to suffer from this complaint whatever is done and in fact during 1953 3,060 such children were treated by the school travelling dispensary.

232. Whilst every opportunity is fully utilized to advise parents and children in the wearing of shoes, certain obstacles delay the attainment of desired results. There is the natural preference of the more isolated people to remain barefooted whilst engaged with their daily task. Due cognizance must be made also of the inability of a proportion to afford footwear. Insanitary habits is still the most important factor however and towards its eradication full use was made of practical health education with particular attention to the satisfactory removal and disposal of nightsoil. This was supplemented by the establishment of modern sanitary conveniences in all new schools and by action on existing schools with less-sanitary systems.

Vision

233. Good results continued to be recorded. Only 9.2 per cent of the girls and 2.74 per cent of the boys appeared to show any defect. Financial assistance, available from the Education Department, covers the provision of spectacles for the children of families of poor economic status and is limited to incomes of $300 for a family of four or more children. Besides this, certain opthalmic firms give concession to school children.

Anæmia

234. Only 1.71 per cent of the girls and 3.73 per cent of the boys showed a hæmoglobin count below 60 per cent. Appropriate action was taken in these cases.

Infectious Diseases in Children

235. All infectious disease notified in children is investigated immediately and thoroughly, and this investigation extends to the homes. This epidemological work has been found particularly necessary in schools, because in spite of advice and warning about exclusion of contacts from schools, it has been invariably found that they still attend. In some cases even the patients themselves return to school after only a few days absence.

236. As might be expected the highest prevalence rates are found in such children's diseases as chicken-pox, measles and mumps, and to a lesser extent whooping cough and diphtheria. Though the numbers reported for the last two diseases are comparatively few their after-effects and complications can be so serious that protective innoculations are provided on as complete a scale as possible.

237. *Figures for infectious disease amongst school children*

Chicken-pox	687	Typhoid	4
Measles	503	Poliomyelitis	1
Diphtheria	45	Leprosy (Neural type) ...	53
Mumps	234	(Lepromatuous ...	6
Whooping Cough ...	34		

238. Fifty-three cases of neural leprosy were treated at the North Canal Road Clinic during the year. Of these thirty were new cases. Twelve were discharged as cured while six were sent to Trafalgar Home for treatment. Of the thirty new cases, twenty-seven were Chinese, two Indians and one Malay. Introduction of sulphetrone tablets has brought a noticeable response in treatment and side affects are negligible, provided a health check is maintained regularly and is supplemented by other drugs.

Vaccinations

239. Only 1,037 vaccinations were done during this year. This low figure is accounted for by the very successful 1951/52 vaccination campaign, when over 700,000 of the population responded.

Respiratory disease excluding tuberculosis

240. 0.56 per cent of boys and 10.07 per cent of girls were affected, the most common conditions found being the common cold, bronchitis and asthma.

TUBERCULOSIS IN SCHOOLS

241. The lady doctor engaged in this service acts as a liaison officer between the school health section and the specialists at the tuberculosis institution. Primary complex and non-infectious cases come under her direct care at the North Canal Road Clinic. Contacts and infectious cases are seen by her at the Tan Tock Seng Hospital where she can get the advice of the chest physicians and, where necessary, admit cases into the hospital. All teachers who show signs of tuberculosis at X-ray examination come under the direct care of the chest physician who refers them back to the lady health officer only when they are free from infection. The chest physician is responsible for the certificates of fitness for teachers. The aim of this service is to detect all the early cases and carry out intensive follow-up of known cases. Following detection both home and school contacts are X-rayed.

242. The 'Mantoux' test is done on all children who are contacts of a proved case of tuberculosis. X-ray is automatically done on all children with—

1. a blister reaction following 'Mantoux' test;
2. under-nourishment;
3. a history of chronic illness;
4. anatomical defects such as scoliosis and shortness of the limb.

243. Teachers in all schools visited in connection with the tuberculosis investigation are automatically X-rayed. In this way a number of cases have been discovered. The school tuberculosis section also receives cases as a result of X-ray examination ordered by the school doctors.

Feeding Schemes

244. A supply of powdered milk for use amongst school children is available from the Social Welfare Department on the recommendations of the school health officers. 788 boys and 5,319 girls are in receipt of this at the moment. Extra feeding is given at special clinics. Weekly sessions are held at two of the clinics and once a fortnight at another. It has been possible to increase the number of feeding clinics, and amongst the foods given are powdered milk, ovaltine, eggs, fresh fruits, margarine and peanuts. The lack of a protein hydrolysate is thought to be particularly important in cases of serious under-nourishment. This question is receiving attention.

SCHOOL CHILDREN X-RAYED UP-TO-DATE (1948–1953)

Numbers examined radiologically	Numbers with Pulmonary Tuberculosis present radiologically	PRIMARY COMPLEX		RE-INFECTION		Post Primary
		Active	Healed	Active	Healed	
22,565	1,524	938	693	..	? ..	..

cf

SCHOOL TEACHERS X-RAYED

The survey on teachers started in 1949 was completed to the following extent:—

——	Number examined radiologically	Abnormal films	TOTAL ACTIVE CASES		Total arrested	Total still under observation	Percentage active
			Sputum positive	Sputum negative			
Males ..	1,946	105	9	26	120	29	.46
Females ..	2,411	158	10	27		50	.41
Total ..	4,357	263	19	53	120	79	.43

School Buildings and Sanitation

245. Much effort has been directed at ensuring that the new schools lack nothing essential in environmental hygiene and sanitation. Full co-operation has been obtained from the staff of the Education Department in this respect. Some privately conducted Chinese schools are not in this fortunate position.

Most of the Chinese school buildings in the Colony however are well sited and well built in accordance with modern standards. The construction of all schools is a joint affair of the Education Department, the School Health Service and the Public Works Department. The sanitary inspector of the school section pays particular attention to structural and other defects. Efforts were made to improve conditions by recommending such repairs as were considered necessary. Owing to the lack of funds or the absence of suitable vacant land in the immediate neighbourhood, it has not always been possible for individual schools to comply with a recommendation of total reconstruction.

246. Overcrowding still persists in many schools, especially in the aided-Chinese and private schools, and two sessions are conducted daily in most. The supervision of schools is assisted by the issue of accommodation certificates which state the number of pupils suitable for any one school. 126 of these were issued during the year.

247. All new schools install tiffin-sheds and attempt to provide playing fields. The former correspond to tuck-shops. They are encouraged because they help to eliminate the dangers associated with hawkers who ply their wares in and around schools. The satisfactory position has not been reached yet when hawkers can be completely barred from schools. So the necessity still remains for routine examination of these people. During the year 296 hawkers received full medical examination including X-ray. Of this number 26 were found to be suffering from tuberculosis and were excluded from school premises. Other school health activities included consideration of plans for 41 proposed schools, as well as alterations and additions to many existing premises. In general, stress is always placed on the provision of ample playing fields and satisfactory tiffin-sheds, adequate sanitary arrangements, good water supply and the proper lighting and ventilation of classrooms.

SCHOOL CLINICS

248. There are three school clinics in operation in Singapore. These treat children referred to the clinic as a result of school inspection, and children sent by headmasters and headmistresses for medical attention. These clinics have to do far more work than a school clinic should, and are in fact out-patient departments for children of school age. However, most of the cases seen would receive little or no attention if it were not for the out-patient function performed.

249. The main clinic is at North Canal Road. It is a small cramped building liable to be flooded when heavy rain coincides with a high tide. This clinic is open on Monday, Wednesday, Friday and Saturday in the morning, and on all days except Saturday and Sunday in the afternoon. On Thursday morning the tuberculosis feeding scheme operates from here. Paya Lebar Outdoor Dispensary is used as a school clinic on Monday and Friday afternoons. The clinic at Teluk Kurau is held in a small room in the Teluk Kurau English School building. It is open on Tuesday afternoons. Serious cases seen at the two smaller clinics are referred to North Canal Road for complete examination and treatment.

NUMBER OF CASES SEEN AT CLINICS

	New Cases	*Re-visits*	*Total Attendance*
North Canal Road ...	12,798	19,230	32,028
Paya Lebar	1,543	2,102	3,645
Teluk Kurau	978	1,106	2,084
	15,319	22,438	37,757

CHAPTER FOURTEEN

DENTAL HEALTH

250. In 1953 for the first time the dental services were combined in one section of the Medical Department under the Chief Dental Officer. They comprised the school service, the clinic for the public and for certain Government Servants which is situated in the General Hospital, and a number of miscellaneous dental establishments and services. There are now eighteen professional officers (including housemen) out of a total establishment of twenty. As the clinic at the General Hospital serves the dual role of public service and teaching, a separate note is added by the Professor of Dental Surgery of the University of Malaya.

251. The school service, on which considerable emphasis has been placed, was operated by four full-time Dental Officers and one part-time officer in a central clinic, which is temporarily sited at Tan Tock Seng Hospital, and by four Dental Nurses stationed in clinics in schools and working under the direction and supervision of the qualified staff.

252. The central clinic, dealing with children from seventeen schools and other institutions, registered 17,362 attendances, made new examinations of 2,348 children, of whom 2,153 (91.7 per cent) required treatment, inserted 13,330 fillings, extracted 6,959 temporary and 3,714 permanent teeth, and completed treatment for 1,022 cases. During the year, treatment was completed entirely for six schools, but it may be made clear that these schools will continue to receive attention by the examination and treatment of new entries and by the re-examination and further care of previous cases. No school is taken over by the centre and subsequently given up. It was possible through the expansion of the centre to commence examination and treatment for six new schools. By the end of the year there were six chairs in use at the centre which has now reached the limit of its expansion.

253. The Dental Nurses, in 5,281 attendances, inserted 5,329 fillings, carried out 2,654 extractions of temporary, and 34 of permanent teeth, and rendered 378 patients dentally fit. It is clear from these figures that the concentration of caries per child is high as so much treatment produced so few completed cases. The Dental Nurses are at a disadvantage compared with their sisters in New Zealand, where their use was first developed, in that each nurse has to try and treat children in *two* schools, morning and afternoon, and each school often has several primary classes, so that the nurse has large numbers of patients to clear up as arrears before she can begin to work on a maintenance basis.

254. In July two further nurses were sent to the Dental Nurses School in Penang: the changed basis of training, with the course lengthened from one to two years in the school, means that there will be a hiatus in development of the Dental Nurses scheme here, but a steady expansion is anticipated in this field from 1955 onwards.

255. At the Dental Clinic, General Hospital, total admissions of new patients numbered 14,444 and attendances were 50,449. There were 6,006 fillings (amalgams 4,227, silicates 704, others 1,075), and 58,102 extractions. Dentures made or required, 1,726. Treatment was completed for 1,091 patients,

only 7.5 per cent of new admissions: this was partly due to failure of patients to attend for the whole course of treatment required, but was also occasioned by the overwhelming demand for emergency treatment.

256. The Police Dental Clinic has now been in existence for over three years. As the first heavy arrears of treatment required have been worked off, the number of emergency visits has fallen as preventive treatment by means of fillings has begun to reduce the incidence of toothache. Only 216 new examinations were needed, and there were in all 2,352 attendances. Fillings totalled 2,029 and extractions 456. Treatment was completed for 344 patients. During the year, approval in principle was obtained to alter and improve the clinic and to instal the modern equipment which arrived some time ago. The Dental Officer has produced a very fair year's work in difficult circumstances. Treatment was refused by patients on a number of occasions, but it is felt that this is less likely to occur when the clinic has been properly adapted and equipped, and also when dentures can be provided to replace extracted teeth.

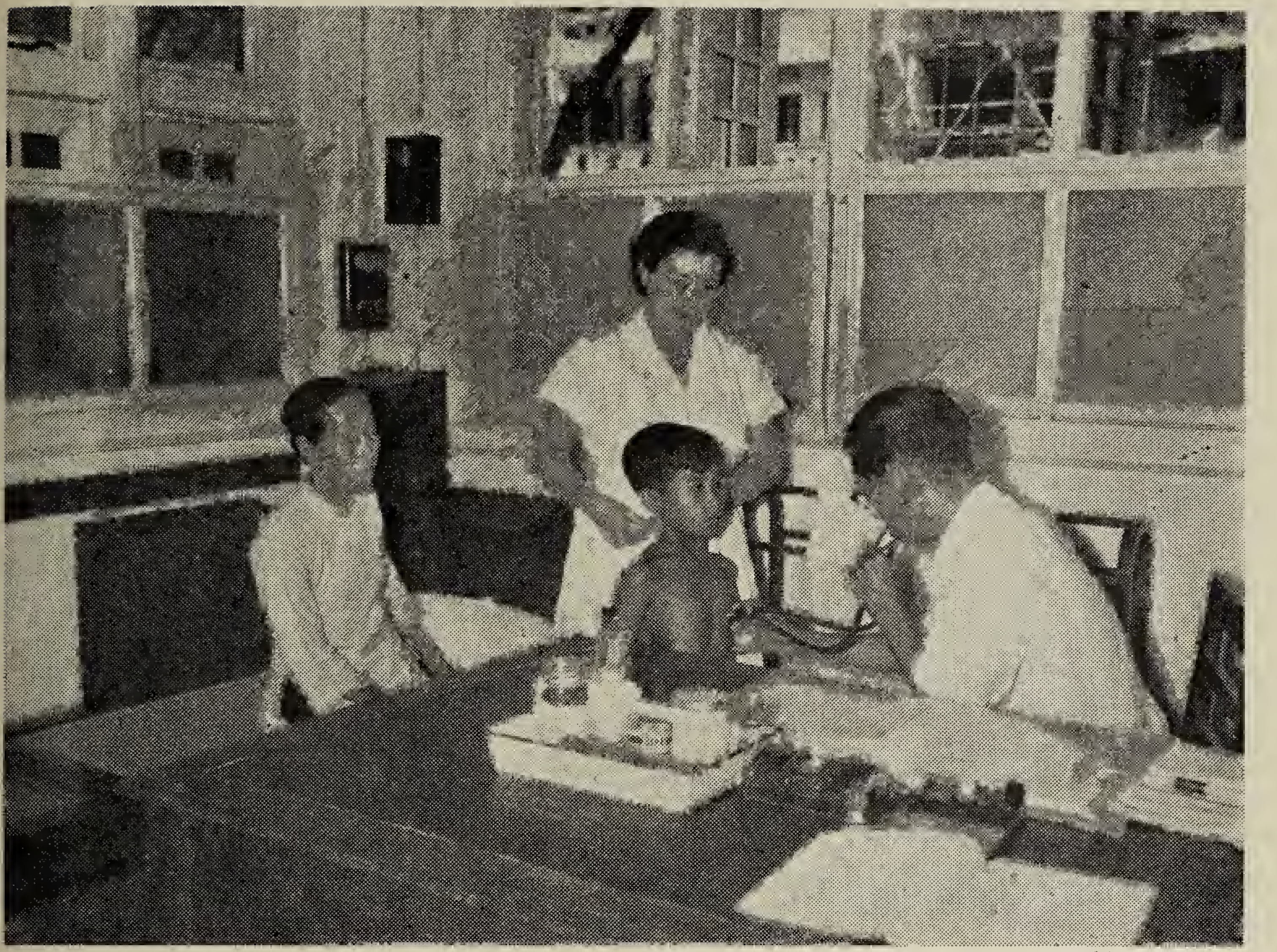
257. Dental treatment at Woodbridge Hospital was continued by means of weekly visits from the Dental Officer, Police. By the elimination of gross sepsis from the mouth some contribution was made towards the relief of mental sickness. In the latter part of the year the Chief Dental Officer undertook a survey of all patients considered by the Medical Superintendent to be lucid enough to accept full dental treatment, but it was found that from the dental aspect only about 50 per cent of these cases would be likely to benefit by such measures. Nevertheless there is probably sufficient work for one Dental Officer in treating the chronic sick of Singapore, and it is the aim of this section to provide adequate surgeries at all three hospitals concerned, so that an officer can be appointed to carry out this task. During 1953 a small set of equipment and a portable chair were delivered to the Trafalgar Home and the Chief Dental Officer attended weekly to carry out emergency treatment: this institution should certainly have a permanent surgery, and this will be borne in mind when future expansion takes place.

258. Extractions under general-anæsthetic were carried out on several occasions at St. Andrew's Orthopædic Hospital, with the valuable assistance of the Senior Anæsthetist.

259. Emergency dental treatment was given at Changi Prison once each week.

260. The post of Dental Officer, Royal Malayan Navy, was transferred to the Medical Department establishment on 1st January, 1953, and thereafter a Dental Officer visited the Royal Malayan Naval Headquarters for three days each week. He examined 300 ratings, inserted 408 fillings, carried out 178 extractions, made and fitted 30 dentures, and rendered 114 patients dentally fit.

261. In August, as an experiment, a Dental Officer was attached to Child Welfare Centres at Bukit Timah and Mandai, for the treatment of expectant and nursing mothers and pre-school children. Equipment at present is very simple, and surgery accommodation not of the best. No large volume of treatment was expected at first as this is a new field for dentistry in Singapore and emphasis was placed largely on advice and persuasion. However by the end of the year 731 patients had been examined and there were 1,753 attendances in all: 473 fillings were inserted, and extractions numbered 2,385. Treatment was completed for 37 patients. There was considerable oral evidence of bad feeding habits and consequently the average patient

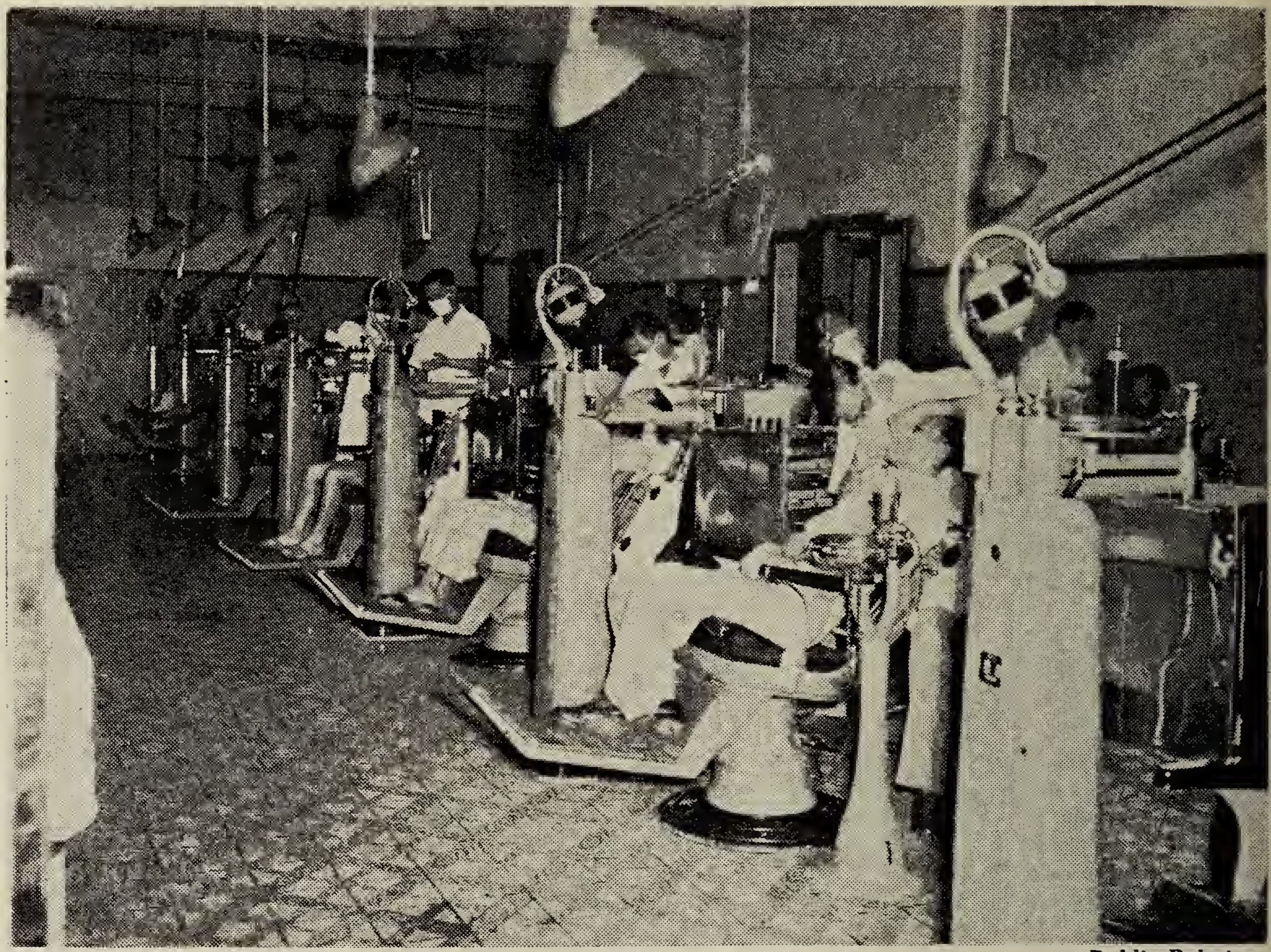


Public Relations

In a School Clinic

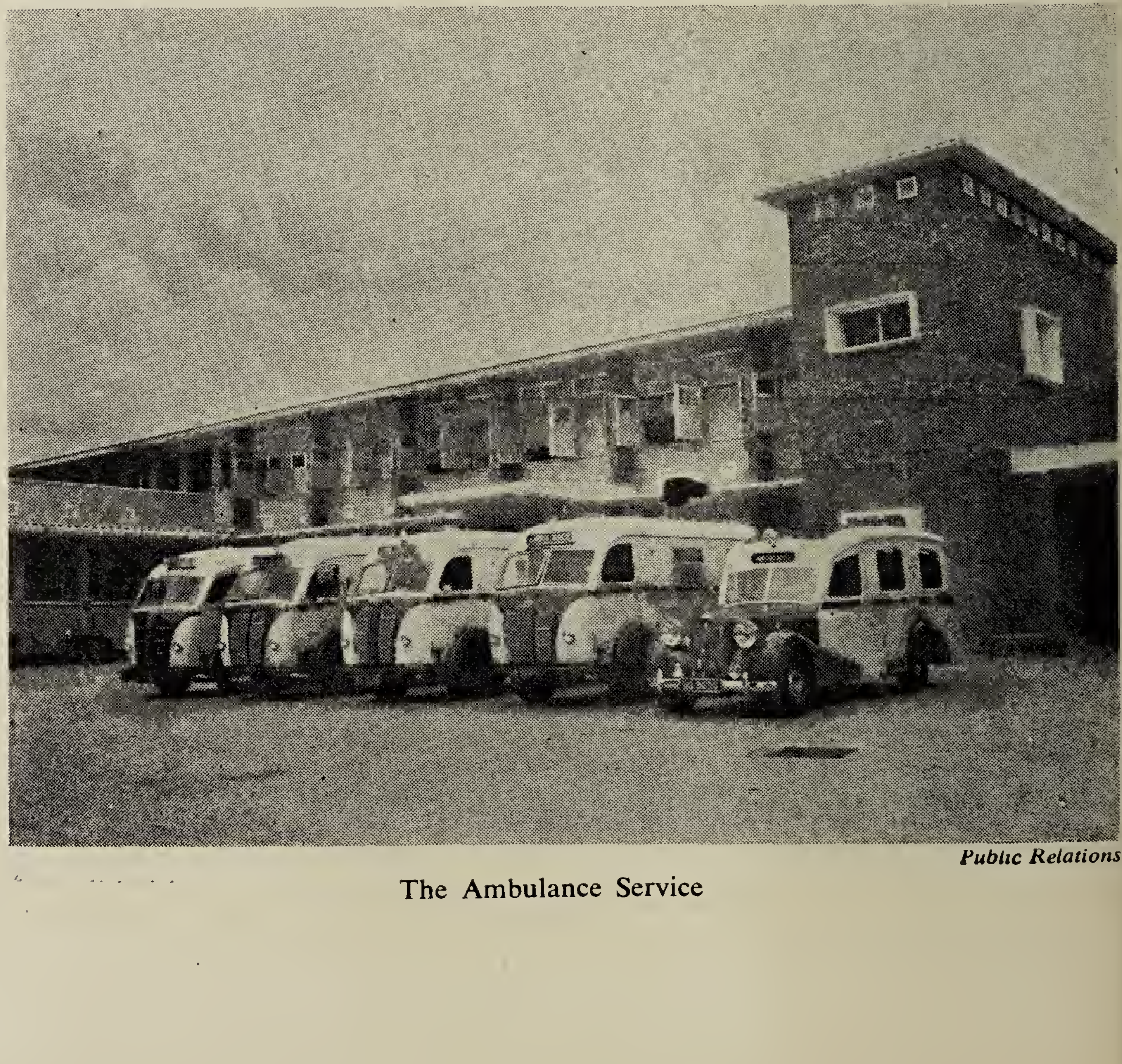
Public Relations

Mantoux testing in a school



Public Relations

A part of the Dental Clinic



Public Relations

The Ambulance Service

required many hours of treatment, plus some type of supplement to the diet. The experiment may be regarded as successful, and in future main Child Welfare Centres will be built to include dental surgeries. If these are properly equipped and can offer full treatment, including dentures, to mothers, the service should prove even more valuable than that for school-children, because by instruction to mothers and by seeing very young children, much may be done to reduce the damage which is caused by caries before the child enters school.

262. The Chief Dental Officer visited Christmas Island in May, and examined all the school children and as many others as could be brought for inspection. As a result of this survey the British Phosphate Commissioners have agreed to build a surgery and purchase dental equipment. Thereafter it is proposed to send a Dental Officer on six-monthly visits to treat the Island children.

263. The proposed fluoridation of the Singapore water supply was the subject of a number of meetings with the City Council authorities. A detailed scheme has been prepared, and it is understood that this is likely to be put into operation in the near future.

264. A central dental store was opened during the year to receive and issue materials and equipment for all dental services, and a large balance of stock was taken over from the Government Medical Stores which had previously handled these supplies.

265. Much time was given to the design and building of a mobile Dental Clinic to attend schools in the rural areas, and this vehicle, which, with its own electrical generating set, and water storage tanks and pump, promises to be the finest in Malaya, will be on the road very soon.

266. During the year, visits were received from the Director of Dental Services, New Zealand, who was particularly interested in the work of the Dental Nurses, and from the Director and Deputy Director of Dental Services, Indonesia. An enquiry was received from Sarawak on the subject of water fluoridation.

267. The Inspecting Officer, Dental Board, was again able to assist with the treatment of school children in addition to his inspectorial duties. Of the 334 registered dentists now in Singapore, 276 are unqualified, and these are the subject of regular visits by the Inspecting Officer. During the year, 352 routine inspections took place, and seventeen dentists were warned about the state of their premises. 310 further inspections were made at the premises of dentists of both divisions, in furtherance of the Board's resolution on the restriction of signboards, and by the end of the year there was a marked improvement in this respect.

268. Other visits were made in connection with the use of certain drugs by registered but unqualified dentists and a report was prepared for the guidance of the Board.

269. Chief Dental Officer: Mr. N. H. Gittins, F.D.S., R.C.S. (Eng.).

270. REPORT BY THE PROFESSOR OF DENTAL SURGERY

(Professor R. J. S. Tickle, D.D.S., L.D.S., R.C.D.S., M.SC. (Dental)) on the Dental Clinic, General Hospital

(i) The Dental Clinic forms part of the teaching section of the Dental Department of the Faculty of Medicine, University of Malaya, and this report should be read in conjunction with the Annual Report of the University of Malaya.

	New cases	Total attendances	FILLINGS			Extract	Scale	Dress	Dentures fitted or repaired	X,Ray Films	Completed
			Amal	Silicate	Others						
Dental Clinic, General Hospital ..	14,444	50,449	4,214	704	1,075	58,102	732	31,584	1,726	5,993	1,091
School Dental Clinic, Tan Tock Seng Hospital	2,348	17,362	11,790	1,479	61	10,673	1,117	6,779	..	..	1,022
Dental Officer—Police	216	2,352	1,678	351	..	456	455	156	..	..	344
SCHOOL DENTAL NURSES											
McNair Road, School .. .. Pearl's Hill School .. .. .. Gan Eng Seng School .. .. Anthony Road School	565	5,393	5,019	20	290	2,688	605	1,284	..	..	378
Bukit Timah and Mandai Infant Welfare Centres	731	1,753	445	28	..	2,385	148	35	..	..	37
Dental Officer, R.M.N. (part-time) ..	300	1,316	342	58	8	178	92	295	30	..	114
Total ..	18,604	78,625	23,488	2,640	1,434	74,482	3,149	40,133	1,756	5,993	2,986
			27,562								

Staff

(ii) Certain staff changes occurred during the year, and Messrs. Lee Chee Onn, Chia Sai Seng and Tan Yok Lin were transferred from this Clinic. The following Housemen were appointed: Messrs. Wong Hee Deong, Ng Luck Cheng, Chua Swee Yeow and Chin Kee Siong, and in addition Mr. Koh Eng Yam, attached to the M.N.V.R., commenced part-time duties at this Clinic.

(iii) The Government staff at the Dental Clinic at present consists of three full-time Dental Officers, one part-time officer and four Dental Housemen, and it is not possible to increase this number until additional space and equipment become available.

(iv) The University staff assist in the treatment of the general public. During the year Professor W. W. H. Terrell, Visiting Professor of Prosthetic Dentistry, and Dr. B. Niland resigned and there was one appointment. The staffing position is at present more satisfactory than ever before with nine full-time and three part-time officers. Both the Chair of Prosthetic Dentistry and a new appointment to a lectureship in Dentistry with special reference to Periodontal Disease will be filled early in 1954.

General

(v) The general position is set out in Tables I, II and Form MD. 2 which are attached to this report.

(vi) Table I gives detailed figures for the work done during 1953, and Table II shows the comparative figures from 1947 to 1953. In Table III the age separation date for children is 15 years.

(vii) These figures show remarkable increases in both the number of new patients and the total number of out-patients. The increase in new patients was 4,390 or a 43.6 per cent increase, and for out-patients 12,461 or a 32.8 per cent increase over 1952. Such increases were not thought possible, but have been accomplished through the efforts of an efficient staff.

(viii) It is interesting to note that the number of former patients presenting for treatment increased by over 100 per cent during 1953.

(ix) The demand for treatment during 1953 has been exceptionally heavy, and it is believed that this is in part due to a greater acceptance by the public of western dentistry. For example we have at present a six-months' waiting list for the supply of dentures.

(x) As usual the demand by the general populace for the relief of pain is extremely high, and this accounts for the heavy increase in the number of extracted teeth both in children and adults. Though it is our prime aim to provide preventive and conservative treatment whenever possible, this phase of work is still largely performed by students as part of their training requirements. The total amount of conservative work performed during the year therefore has increased but little over 1952.

(xi) The number of dentures actually supplied during the year to patients has however increased by 503, or a 41 per cent rise.

(xii) There will be an extension to the existing building in 1954 and this, together with an anticipated increase in students and additional equipment, will result in a greater amount of preventive and conservative work.

(xiii) There exists an excellent liaison between this Clinic and the rest of the General Hospital, and many surgical and other cases of interest are referred from the various wards.

Revenue

(xiv) Treatment is given free where patients are unable to pay, and in other cases patients, who are in the low bracket income group and so eligible for treatment, only pay for the cost of materials.

(xv) The total revenue amounted to $44,535.59, an increase of $13,408.92 over the previous year, and should be considered extremely satisfactory.

(xvi) It should be pointed out that, as in previous years, the staff do not receive any percentage of fees from cases referred by private practitioners or various firms.

(xvii) While a priority has been and will continue to be given to the School Dental Section which was only instituted in 1949, the intention is to steadily expand the service to the general public and to the lower paid Government officer. In consequence certain old and temporary buildings previously owned by the Naval Research Unit are being developed for this purpose until the comprehensive Urban Health Centre scheme is developed. Work on this will start in 1954 and it will include provision for dental chairs and dental mechanics in addition to the headquarters of the school medical and dental organization.

TABLE 1

YEAR	PATIENTS			EXTRACTIONS		FILLINGS											
1953	First visits	Other daily visits	Total of all visits	Local and Regional Anæsthetic	General Anæsthetic	Amalgam	Synthetic Porcelain	Acrylic	Inlays	Crowns	Bridges	Gold Foil	Root Fillings	Total of all fillings	Oral Prophylaxis	Dentures supplied or repaired	Completed cases
..	14,444	36,005	50,449	43,385	14,717	2,612	720	50	514	92	67	109	188	6,006	732	1,726	1,083

TABLE II

Year	Total new cases	Total Outpatients	Daily Average	Extractions	Fillings	Dentures	Completed Cases
1947	3,973	22,932	57.36	14,600	4,820	690	294
1948	3,895	29,355	69.6	15,900	5,200	753	401
1949	4,599	38,806	93.86	21,455	5,760	1,281	466
1950	5,870	36,868	84.96	25,489	3,388	1,451	259
1951	7,149	29,168	60.32	22,973	3,490	1,457	711
1952	10,054	37,988	77.33	27,935	5,813	1,223	919
1953	14,444	50,449	98.1	58,102	6,006	1,726	1,083

TABLE III

M. D. 2

Nationalities	NEW CASES				REPETITIONS			
	Male	Female	Child	Total	Male	Female	Child	Total
Chinese ..	4,897	3,930	2,621	11,448	10,563	9,654	6,769	26,986
Indians ..	1,179	227	347	1,753	3,252	1,118	1,006	5,376
Malays ..	643	141	148	932	1,981	345	272	2,598
Others ..	144	67	100	311	616	228	201	1,045
Total ..	6,863	4,365	3,216	14,444	16,412	11,345	8,248	36,005

CHAPTER FIFTEEN

THE SINGAPORE ADVISORY COUNCIL ON NUTRITION

271. During the year, the membership of this Council was extended to include the Food Production Officer as an official member, and Dr. I. A. Simpson, Chief Chemist, Institute of Medical Research, Federation of Malaya and Miss T. J. Norris, Visiting Lecturer from the World Health Organization, as guest members. The Council has benefited considerably as a result of closer liaison with other Government departments and the surrounding territories. Professor J. H. Strahan acted as Chairman until May 1953, when he left the Colony, and thereafter the Director of Medical Services was appointed to the Chair.

272. A standing sub committee was appointed by the Council to report periodically on the dietary scales of Government institutions. The sub committee reviewed the various dietary scales in use in the Police Department and recommended certain modifications. The meal supplied by the Department of Social Welfare in the Child Feeding scheme was reconsidered in relation to the increased cost of foodstuffs, particularly of fruit, and the difficulties of distribution due to the extension of the scheme to the rural areas. The sub committee recommended that although expansion of the scheme to include children requiring any form of supplementary feeding was desirable, such expansion should not be contemplated if it meant serious curtailment of the food value of the meal. The meal as modified in 1952 was supplied throughout 1953 and covered 2,000 children. It was in the following form:—

273. A snack consisting of two ounces vitaminised bun together with a milk drink and fresh fruit. The milk is made from skimmed milk powder provided free by U.N.I.C.E.F.

274. A sub-committee was formed to investigate the present training of government personnel in nutrition and the opportunities for further education which appear to be desirable. As a result of this inquiry, Council agreed that a short elementary course in nutrition should be considered for in-service training of officers of the interested Government departments. The Council is now to discuss a curriculum and the probability of sponsoring such a course in 1954.

275. The Council reviewed information as it became available on the value of enrichment of foodstuffs, particularly of rice and skim milk, in the treatment of serious vitamin or mineral deficiency in populations. It reaffirmed the desirability of the availability of some means to enrich staple foodstuffs as a measure of combating nutritional emergencies. While at the present time there is no evidence of the need for such enrichment, it was agreed that if the health of the population of the Colony showed any signs of deterioration the subject would be reopened. It was decided that no positive steps should be taken in regard to supporting a proposal to enrich skim milk until there was satisfactory evidence that such a product would be stable in storage conditions in the tropics.

276. On the subject of protein malnutrition it was reported that severe forms of such deficiency was rarely observed in the Colony. It was agreed however that the intake of protein in the diets of the poor was undesirably

low, and the Council discussed the information available on low cost, natural, and processed foodstuffs rich in protein. The increased use of soya bean products was considered as a means of raising the protein intake.

277. Attention was drawn to the problem of kerato-malacia in the Colony. The Council resolved that Government should be informed of the need for an investigation to determine the extent of the problem and to gather information on the major causes of vitamin *A* deficiency states which occur, as a preliminary step in deciding its importance as a public health problem and in directing any campaign of prevention.

THE DIVISION OF APPLIED NUTRITION, DEPARTMENT OF SOCIAL MEDICINE AND PUBLIC HEALTH, UNIVERSITY OF MALAYA

278. The Division of Applied Nutrition, Department of Social Medicine and Public Health, University of Malaya, undertook a further investigation of the growth rates of infants in the Colony during the year. The study was conducted along similar lines to previous studies but was limited to 135 Chinese infants who belonged to the middle and upper income sections of the community. The homes were visited regularly and records were kept of weight and length of the infant, the method of feeding, the medical history and the social customs of the family which may influence the progress of the child. These observations will be compared with those made in 1951 and 1952 on Chinese infants belonging to families in the lower income levels, and will be used to assess the importance of environmental factors to the health and progress of the infant.

279. The staff continued to collect height and weight measurements at three monthly intervals of 400 Chinese and 500 Southern Indian pre-school children in the urban area of Singapore who were under obvervation in 1951 and 1952. This year the scheme was expanded to include a number of Malay children and it is proposed to maintain this project in 1954.

280. The following papers were published during the year:—

'Factors influencing the birth weight of offspring'. J. Millis. *The Medical Journal of Malaya,* 1953, 7, 168.

'Growth curves of Singapore-born Chinese infants during the first year'. J. Millis. *The Medical Journal of Malaya,* 1953, 7, 296.

'Gain in weight and length in the first year of life of Chinese infants born in Singapore in 1951'. J. Millis. *The Medical Journal of Australia* (in press).

'The influence of nutrition on the growth rate in the first year of life of Chinese infants born in Singapore in 1951'. J. Millis. *The Medical Journal of Australia* (in press).

281. At the request of Government a palatability trial on rice from British Guiana was conducted in six institutions in Singapore. The institutions were selected to give a range of age, race and economic groups and provided 822 consumers. The sample was highly milled and contained a fair proportion of broken grain. It was found that care was required during cooking particularly in bulk preparation as the rice tended to become glutinous. As compared with rice from Thailand, 10 per cent more British Guiana rice was required to produce the same quantity of cooked rice. The cooked grains were slightly blue in colour, soft, and relatively lacking in flavour.

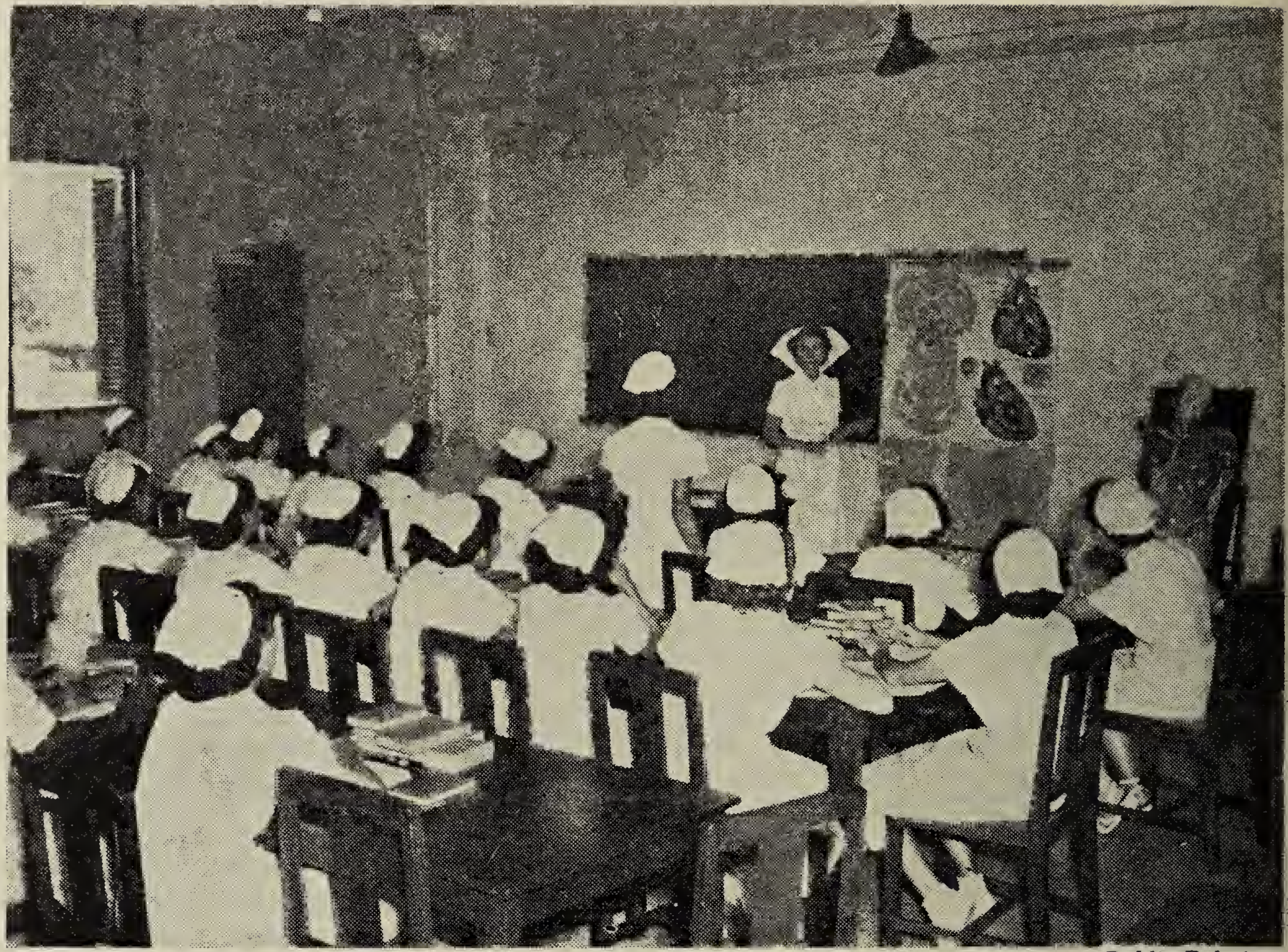
282. The division co-operated with the staff of the Eye Clinic of the General Hospital in the investigation of the families of fourteen cases of severe kerato-malacia in infants and children who were admitted to the wards during the year. Instruction was given to the mothers regarding the best and cheapest ways of improving the family dietary and the level of hygiene in the home.

PART III

THE HOSPITALS DIVISION

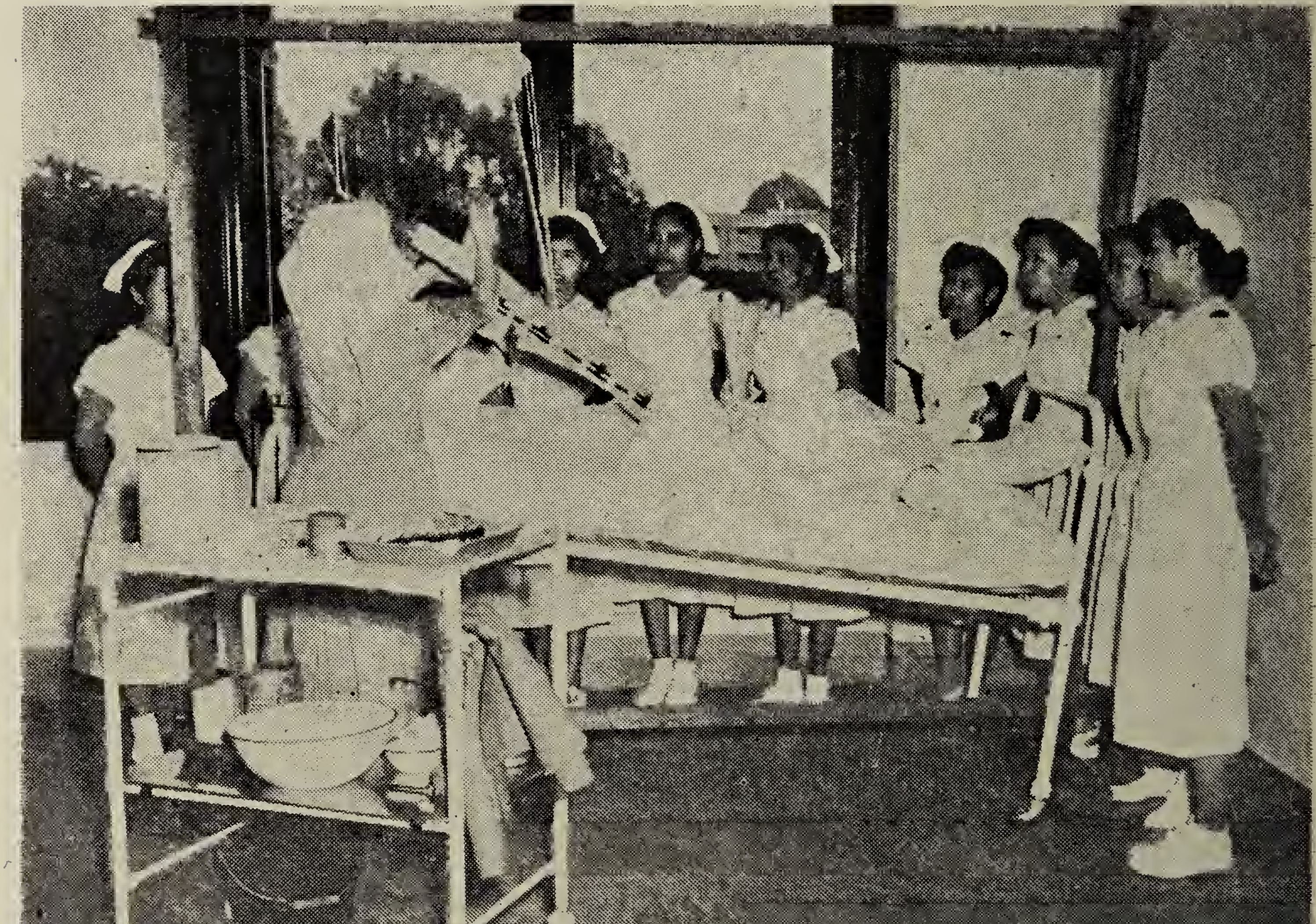
C.O.I. Photograph

Singapore General Hospital—Nurses with their hostel in background



Public Relations

Nurses Training School, General Hospital—Lecture in progress



Public Relations

Nurses Training School, General Hospital—Demonstration in progress

CHAPTER SIXTEEN

THE HOSPITALS DIVISION

GENERAL REVIEW

283. The past year is memorable in that it marked considerable advances in the implementation of the Medical Plan. During 1952 work was started on the construction of the New Nurses Hostel and the New Out-Patients Department and 1953 saw both these magnificent buildings completed. On 29th July, Mrs. Tan Chin Tuan, J.P., declared the new Nurses Hostel open and in doing so expressed the wish that this fine building would influence favourably our recruitment of nurses. Before the end of the year the remarkable increase in the number of suitable girls applying for vacancies in the Nurses Training School was sufficiently encouraging to justify the belief that comfortable and congenial quarters is a very important factor in the recruitment of all staff.

284. In August 1953, the New Out-Patients Department including the Blood Transfusion Unit was opened by Mr. C. C. Tan who as a member of the Legislative Council had been associated with the Medical Plan from its inception. This building includes on the ground floor an Out-Patients Department, a Casualty Department together with a large Dispensary which besides supplying drugs to the Out-Patients also supplies all those used by the hospital itself. On the first floor is a completely up-to-date Blood Transfusion Unit which has been praised by visitors from all parts of the world.

285. That the above two buildings represent only the earlier stages in the implementation of the Medical Plan was indicated in October when His Excellency the Governor of Singapore, Sir John Nicoll, K.C.M.G., laid the foundation stone of the New Wing and Out-Patients Department at Kandang Kerbau Women's Hospital.

286. Before the end of the year plans were almost complete for a further programme of new work both at the General Hospital and at Tan Tock Seng Hospital. There is now a feeling of optimism amongst all members of the Staff that at last the Medical Plan is well and truly launched and is gathering momentum, and that soon the hospital facilities in Singapore will compare favourably with those of most cities of equal size anywhere in the world.

287. The steady increase in the number of patients treated annually in the Singapore hospitals has been maintained and the following table shows those treated both as in-patients and out-patients in the four main hospitals (General Hospital, Kandang Kerbau Hospital, Tan Tock Seng Hospital and Middle Road Hospital) over five of the post-war years together with the figures for 1938 which show the remarkable post-war increase.

	In-patients	*Out-patient* Attendances*
1938	25,913	87,447
1947	27,514	305,138
1949	32,998	461,238
1951	40,833	612,095
1952	48,550†	726,310
1953	55,420	957,481

* In reports prior to 1952 special divisions were not indicated as the numbers covered then in this respect were small.

† This figure was given in last year's report as 55,057 which was the figure for *all* the hospitals.

288. If the above figures are examined together with the graphs on the following pages it is remarkable how steady has been the increase, particularly over the past three years. For in-patients, the year 1952 shows an increase of 19 per cent over the 1951 figure while 1953 shows an increase of 15 per cent over the figure for 1952. The increase in in-patients treated since 1938 is 114 per cent—a truly remarkable figure which is out of all proportion to the increase in bed strength. If the present annual increase of between 15 and 20 per cent is to be catered for, plus the steady natural increase in population, it will be necessary to increase the beds available in Singapore at what will be a dramatic rate because it is quite impossible to reduce further the average time spent by patients in bed without jeopardising the treatment given.

289. Analysis of the out-patient attendance figures shows an increase of nearly 32 per cent. It is impracticable to continue further a true comparison with previous years as the figures for the years 1952 and 1953 include the special divisions which were not previously included although these were then on a very much smaller scale.

290. It has been found necessary to start planning for a new Out-patients Dispensary at the General Hospital to be constructed during 1954. It is only too apparent that a series of such dispensaries will be required both in the city and rural areas if the out-patient problem is to be tackled satisfactorily. Such dispensaries will be associated with the new 'cottage hospitals' planned for the immediate future. The idea is that these latter will provide in-patient facilities for comparatively minor ailments and the dispensaries will cater in addition for out-patients in the rural and outlying urban areas. They will serve to relieve the hospitals and hospital clinics of many cases which can be dealt with just as well elsewhere, besides being medical facilities nearer to the people.

BEDS AVAILABLE AT VARIOUS GOVERNMENT HOSPITALS

———	Pre-war	1946	1947	1948	1949	1950	1951	1952	1953
General ..	750	550	550	600	700	700	750	800	800*
Kandang Kerbau (excluding cots) ..	180	200	220	240	240	240	240	240	240†
Tan Tock Seng ..	600	400	400	550	572	600	540	565	565‡
Orthopaedic ..	..	60	60	60	65	70	70	78	120
Prisons	140	50	50	118	118	140	140	160	160
Social Hygiene (excluding cots) ..	Part of General	60	60	60	68	70	70	70	70
Infectious Disease ..	250	250	250	250	250	250	250	250	250
Leprosy Settlement..	200	260	347	382	451	536	640	725	790§
Police Training School ..	20	20	20	20	20	20	20	20	20
Mental ..	2,000	440	700	1,000	1,200	1,600	1,800	1,800	1,800

* Overcrowding under present conditions. 1,150 by end of 1954 expected.

† Chronically exceeded as a reference to Chapter 20 makes clear. 350 by end of 1954.

‡ A reduction from 1950 through use of wards for staff quarters. 780 by end of 1954.

§ Chronically overcrowded. 1,200 by end of 1954.

291. The above figures show clearly the increasing strain which is being thrown on the Department. After considerable delay, work on the Medical Plan is really going ahead. The capacity of the Public Works Department to undertake additional work is the only limiting factor in our construction programme. Since the opening of our New Nurses Hostel, the recruitment of suitable girls for this profession has been far more encouraging. On the Medical side there is a shortage of Medical Officers but this should be overcome by the end of 1954. In this field quality is of course as important as quantity. The provision of a medical service has many associated problems and if the service is to be a first class one, satisfactory answers must be found for all of them.

NON-GOVERNMENT HOSPITALS

292. The following institutions provide beds for the public:—

Kwong Wai Siu Free Hospital (Chinese) ...	400 (Maternity 58)
St. Andrew's Mission Hospital (Children) ...	30
Malayan Union Mission of Seventh-day Adventists	24
Hainanese Hospital	20
Kheh Hospital	30

MAINTENANCE CHARGES OF THE MAIN HOSPITALS (DAILY AVERAGE)

———	Paying Patients (*a*)	Paying Patients (*b*)	Free Patients
	$ c.	$ c.	$ c.
GENERAL HOSPITAL			
Maintenance including diet	21 44	19 22	17 29
(Diet only)	5 19	2 97	1 04
KANDANG KERBAU HOSPITAL			
Maintenance including diet	14 97	13 94	12 40
TAN TOCK SENG HOSPITAL			
Maintenance including diet	..	..	T.B. Patients 11 46
SOCIAL HYGIENE HOSPITAL			
Maintenance including diet	..	..	9 18

IN-PATIENTS ADMISSIONS FOR THE YEAR 1953

Hospitals	Paying	Free	Total
General Hospital	3,198	22,286	25,484
Kandang Kerbau Hospital	2,557	21,250	23,807
Tan Tock Seng Hospital	..	1,723	1,723
Social Hygiene Hospital	..	2,827	2,827
Middleton Hospital	..	2,049	2,049
Orthopaedic Hospital	..	74	74
Total ..	5,755	50,209	55,964

Excluding mental and leprosy cases, out of the total number of 55,964 in-patients admitted throughout the year 50,209 or 89.72 per cent were free cases. All leprosy cases are treated free. Over 90 per cent of mental cases at any one time are free cases.

293. The Ambulance Advisory Committee met as and when required to review the Colony's requirements in this field.

294. The number of ambulances in use at the various hospitals at the end of the year was as follows:—

General Hospital ...	... 5 in use plus one on order with the Crown Agents.
Kandang Kerbau Hospital	... 2 in use plus one for domiciliary midwifery almost completed by the Public Works Department.
Tan Tock Seng Hospital	... 2 in use.
Middleton Hospital ...	... 2 in use.
Fire Brigade Accident Service	... 4 in use plus two on order.
Rural Board ...	... 1 in use plus one provided for in the Estimates for 1954.

295. The Chief Medical Officer, Singapore, Dr. R. Calderwood, M.B., CH.B., D.T.M. & H., D.P.H., was in office throughout the period under review.

CHAPTER SEVENTEEN

THE GENERAL HOSPITAL

296. The General Hospital is the only hospital in the Colony for the treatment of acute medical and surgical cases, excluding gynæcology. The hospital is now continually overcrowded so the figure of 800 which is given as the basic bed strength is of mere academic interest. The daily average number of patients treated was 760; the comparable figure for 1952 was 738 and for 1951, 670.

297. The following table gives a summary of the work carried out and emphasises the ever increasing problem facing the Department:—

Year	*In-patients*	*Out-patient Attendances*
1947	15,021	160,388
1949	16,051	234,173
1951	20,294	295,697
1952	23,421	*358,769
1953	26,219	*482,332

* The Out-patient figures for 1952 and 1953 include special section. This was not done previously owing to the small number involved.

298. The most significant increase is amongst the out-patients where an increase of more than 34 per cent has taken place. The increase in in-patients treated amounts to 12 per cent. This would have been greater but from the sheer impossibility of admitting any more cases. Even so most units have a waiting list of non-acute cases of between one and six months—a considerable improvement on waiting times noted elsewhere.

299. The two accompanying graphs illustrate the steady increase in-patients treated.

300. During the year the problem of treating the chronic sick still proved a handicap in the efficient running of the hospital. The cost of maintaining a bed in a hospital like the General is high and to justify such expense the beds must be used to full advantage. At the present time, a proportion of these beds is continually occupied by the chronic sick and infirm who could be adequately cared for in an infirmary where the cost per unit would be considerably below that of the General Hospital. At the end of the year 101 such cases were in residence.

301. For some time the inadequacy of the surgical theatre accommodation has resulted to a certain extent in a bottle neck. By the end of the year action has commenced on the construction of two fine new theatre blocks with surgical wards attached, and these should be completed before the end of 1954.

302. When these new theatre blocks are in use the handicap of having a proportion of the hospital beds continually occupied by chronic cases will be more in evidence than ever. It will be necessary to find a solution to this problem.

303. At the present time there are three surgical and two medical units, one ophthalmic and one pædiatric unit. The ear, nose and throat unit is without separate accommodation and shares theatre and ward accommodation with one of the surgical units. Plans are ready for the construction of a complete

ear, nose and throat division and work should start on this in 1954. Plans have been completed and work will start early in the new year on the 200 bedded Children's Wing donated by the late Mr. N. R. Mistri.

304. This new wing will provide 200 beds for children up to the age of twelve years. It is a four-storeyed building. On the ground floor will be two admission wards and two out-patient clinics. The first and second floors will each have two wards for children up to 6 years of age and the third floor will have two wards for children between the ages of six and twelve years.

305. Each ward will accommodate thirty children. Each ward will be divided by 7 feet high glass partitions into five bays which will divide the children into small groups, and thus reduce the incidence of cross-infection. These partitions will also allow the beds to face along the length of the ward rather than across the ward which is the usual position. This will mean that the patients will not look into the glare from the windows on the opposite side of the ward from them.

306. Special provisions have been made in these wards for the bathing of babies and for the washing and sterilising of napkins. Miniature basins and W.C.'s will also be provided for the children.

307. There will be a small play area attached to each ward where the children can be kept occupied during the latter stages of recovery.

308. In the finish decoration and general character of these wards, the aim has been to avoid the atmosphere of an 'institution' and create an appropriate and cheerful atmosphere to play its part in the cure of the children.

309. The General Hospital also acts as the main teaching institution for medical and dental students and is the training school for nurses.

310. The following tables give a brief analysis of the number and type of cases treated.

CASES ATTENDING OUT-PATIENT DEPARTMENT

Out-patients	New cases	Repetitions	Total Attendances
1947	40,496	73,671	114,167
1949	45,966	107,568	153,534
1950	53,811	108,713	162,524
1951	59,576	125,555	185,131
1952	79,672	160,348	240,020
1953	128,889	353,443	482,332

Races	NEW CASES				REPETITIONS			
	Male	Female	Child	Total	Male	Female	Child	Total
Europeans ..	1,879	911	493	3,283	6,458	2,885	1,446	10,789
Eurasians ..	1,469	475	253	2,197	3,554	1,940	937	6,431
Chinese ..	35,952	27,868	14,665	78,485	96,354	69,472	52,767	218,593
Indians ..	12,599	7,094	5,074	24,767	41,457	26,322	11,300	79,079
Malays ..	18,698	4,403	3,060	16,161	18,684	11,694	4,267	34,645
Javanese ..	1,583	1,043	156	2,782	1,097	255	163	1,515
Japanese ..	3	1	..	4	..	..	..	..
Others ..	904	149	157	1,210	1,564	468	359	2,391
Total ..	63,087	41,944	23,858	128,889	169,168	113,036	71,239	353,443

311. In addition the Medical Officers-in-charge of Officials dealt with special cases as follows:—

	1949	1950	1951	1952	1953
Examination of candidates for Government Service	2,544	3,361	6,514	4,917	3,640
Inoculations and vaccinations ..	855	970	1,165	1,460	2,428
Medical Boards	108	85	119	88	102
Total ..	3,507	4,416	7,798	6,465	6,170

312. The marked increase in the number of in-patients treated is shown on the following table:—

In-patients	Daily Average	Male	Female	Total	Deaths per cent
1949	607	11,357	4,700	16,051	12.5
1950	642	13,080	5,529	18,609	12.75
1951	670	14,329	5,965	20,294	11.56
1952	738	16,156	7,265	23,421	11.10
1953	760	17,346	8,873	26,219	10.37

THE MEDICAL UNITS

313. There are three separate medical units—one of which is used exclusively for the treatment of sick children.

Unit	Unit Chief	Basic Beds
Medical Unit I ..	Prof. G. A. Ransome, F.R.C.P., M.R.C.S. ..	120
Medical Unit II ..	Prof. E. S. Monteiro, M.D., F.R.F.P., and S., M.R.C.P., D.C.H.	136
Pædiatric Unit ..	Dr. G. Haridas, M.B.E., J.P., M.D., M.R.C.P. ..	90

314. The picture of overcrowding in the Medical Wards is typical of the hospital as a whole. This has of necessity resulted in the discharge of patients from hospital as soon as possible and the development of well organized follow-up clinics which now cover all the important branches of medicine. To give some idea of the importance of these clinics, the figures for Medical Unit II may be quoted where the total number of patients seen was nearly 12,000 which was nearly 5,000 greater than in the previous year.

315. As in the past the Department of Social Medicine and Public Health has assisted in the investigation of the socio-economic background of selected cases. The Almoner Service continues to serve the needs of the patients most conscientiously but is handicapped by the lack of alternative accommodation to which the chronic sick could be transferred. Tan Tock Seng Hospital has only been able to absorb a very few as the accommodation there is mainly for the tuberculosis patients.

316. The Medical Units carry out most valuable research into the use locally of all the new drugs as and when these are made available in Singapore.

317. In the Pædiatric Unit, Dr. Haridas reports quite a dramatic fall in the mortality rate. In 1952, the cases admitted numbered 3,590 and the mortality was 31.87 per cent. In 1953 admissions increased by over 30 per cent to 4,724 with a drop in mortality to 25.68 per cent. If the cases dying within the first 24 hours after admission are excluded, the improvement in the figures is ever more marked, the mortality falling from 19.39 per cent in 1952 to 9.7 per cent in 1953, a remarkable improvement over any previous year.

318. The following table gives a summary of the cases treated:—

Diseases	Admissions	Total deaths	Deaths within 24 hours	Discharges	Mortality rate
Gastro-enteritis	1,478	409	289	1,069	8.68
Broncho-pneumonia ..	670	302	220	368	6.39
Bronchitis	435	1	1	434	0.02
Naso-pharyngitis	403	2	2	401	0.04
Empyema	17	9	5	8	0.19
Malnutrition	37	8	3	29	0.17
Congenital syphilis ..	6	4	3	2	0.09
Tuberculosis:—					
Meningeal	95	74	10	21	1.57
Miliary	44	33	7	11	0.70
Pulmonary	57	8	5	49	0.17
Glandular	4	..	..	4	..
	——200	——115	—— 22	—— 85	—— 2.44
Intestinal Worms	91	9	5	82	0.19
Encephalitis	56	22	15	34	0.47
Meningitis	65	35	15	30	0.74
Nephritis	120	12	7	108	0.25
Rickets	14	..	..	14	..
Tetanus	29	19	10	10	0.41
Prematurity	91	51	20	40	1.08
Infectious Diseases ..	120	12	10	108	0.25
Congenital anomalies ..	90	46	27	44	0.97
Anæmia	31	5	3	26	0.11
Rheumatic Diseases ..	2	1	1	1	0.02
Skin	66	4	2	62	0.09
Others	703	147	92	556	3.11
Total ..	4,724	1,213	752	3,511	

319. The principal causes of death were gastro-enteritis, bronchopneumonia and meningeal tuberculosis. During the year, 658 cases were admitted to the Lock-Up Prison Ward (9); of these 520 were admitted for mental observation and of this number 480 were certified as insane and transferred to Woodbridge Hospital.

THE SURGICAL UNITS

320. There are three surgical units—one of which deals exclusively with traumatic and orthopædic work.

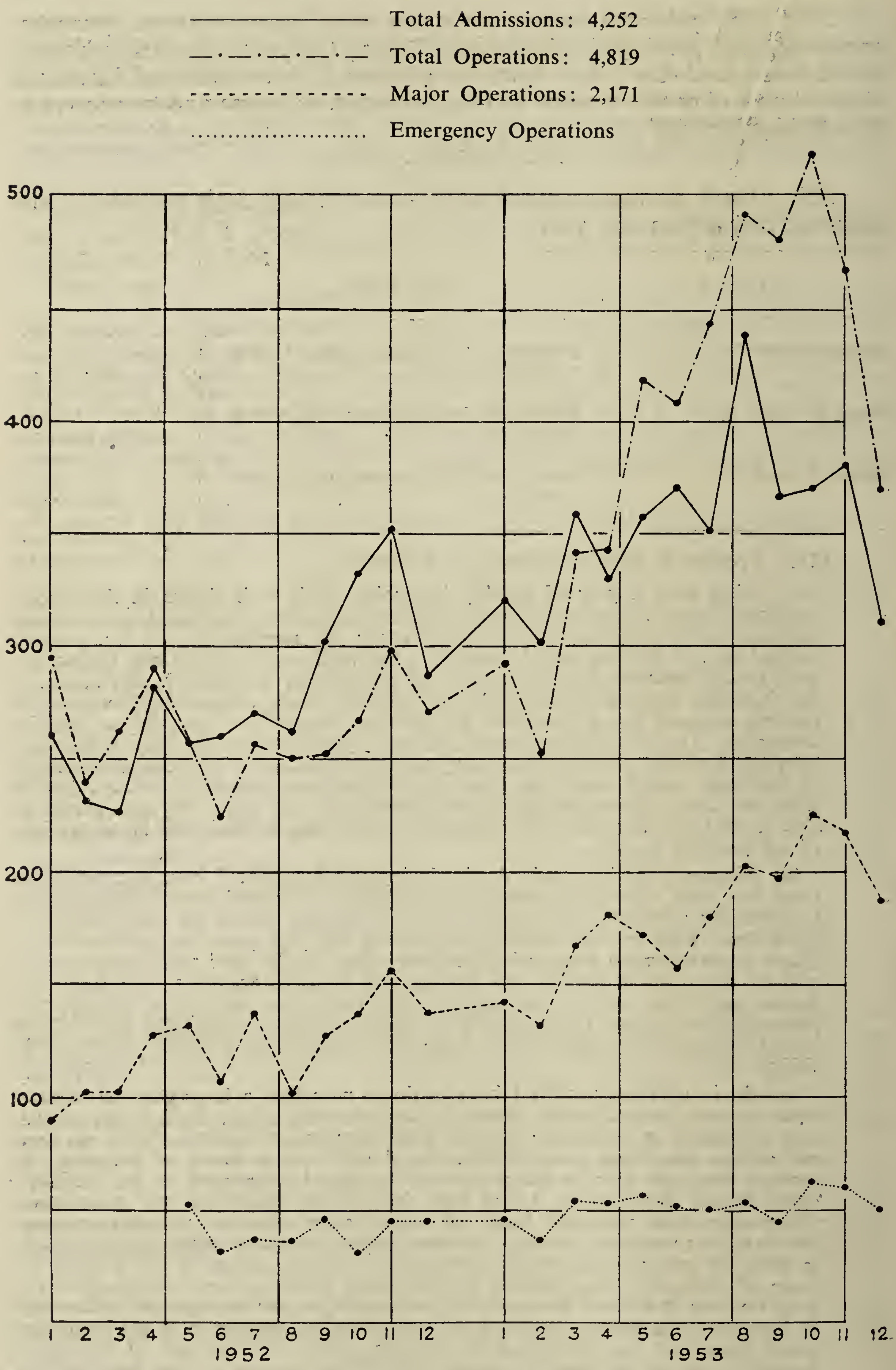
Unit	Unit Chief	Basic Beds
Surgical Unit 'A' ...	Prof. E. C. Mekie, M.B., C.H.B., F.R.C.S.E., F.I.C.S.	110
Surgical Unit 'B' ...	Mr. H. M. McGladdery, M.B., C.H.B., F.R.C.S.	120/130
Surgical Unit 'D' ...	Prof. J. A. P. Cameron, M.B., C.H.B., F.R.C.S.	121

321. Professor Mekie reports as follows:—

(i) It has been a year of steadily increasing work as is shown in the accompanying graph—a graph which demonstrates clearly that there has been a marked increase in the number of patients admitted: the number of major operations carried out. It will be noted that the total operations carried out during the year exceed considerably the number of admissions, and this is attributable to the fact that there are carried out in the unit many operative procedures on patients referred to us from the out-patients department who do not require admission. The fact that so many of our operations are of minor character does not however prevent them engaging very considerably the time and energies of the staff, and I think that this is an important aspect to be remembered when we come to assessments of establishment in our unit. The staff has to be able to deal not only with 130 in-patients; it has also to deal with large numbers of out-patients as well.

(ii) *Character of the Work:* Again during this last year I have to record that there has been a steady increase in the number of 'heavy' cases. This comment is especially applicable in regard to thoracic surgery where the total number of cases dealt with in 1952 was 78 but during the past year has numbered 110. There is no question that such cases both take a great deal more effort on the part of the surgical staff in the theatres but in addition make very heavy demands upon the doctors and staff in the wards for their care during their post-operative phase. The results have been reasonably successful and I think would compare favourably with those of similar units in other parts of the world.

(iii) As in previous reports I have again to note that a large number of cases come to our hospital with disease in an advanced stage. This is particularly true in regard to neoplastic disease, and attempts on treatment in these cases are always hazardous and difficult. Faced with the problem of accepting increased operative risk as the alternative to placid acceptance of an inevitable death in the near future, I feel that there is no doubt but we must accept the greater risks with the hopes of saving some of these wretched patients. Much of this work of course is in some respects waste of effort, since whatever is done in many instances the disease has already advanced far beyond the stage of curability. Nevertheless an occasional happy success encourages us to keep on with this work. In particular we have this year been greatly encouraged by apparently successful outcomes on operations for carcinoma of the œsophagus which have now been followed for over two years without sign of recurrence. Similarly too in the more extensive tuberculous lesions of the lung 'salvage' operations have sometimes been undertaken with apparent success and relief of the patient. These are successes which cannot be shown in statistical form, but they do reflect the fact that we are able in this hospital to offer treatment far beyond what might be described as routine surgery.


Total Admissions: 4,252
Total Operations: 4,819
Major Operations: 2,171
Emergency Operations
500
400
300
200
100
1 2 3 4 5 6 7 8 9 10 11 12
1952
1 2 3 4 5 6 7 8 9 10 11 12
1953

(iv) The glamour of surgery is chiefly centred round the heavy and rather exceptional case. It must never be forgotten that the bulk of surgical practice in the unit is the care of the ordinary routine lesion. The gross figures given in the graph reflect this. It can be pointed out that during this past year 324 cases of hernia have been treated in this unit, and it must not be overlooked that these cases in some respects are the best value of surgery as an 'investment'. For these are the patients who are readily restored to full working capacity and become again efficient members of society.

322. The Department must again record its appreciation of the help given by Colonel Clyne, F.R.C.S., Surgical Consultant, F.A.R.E.L.F., and Wing Commander Hutter, Surgical Specialist, R.A.F. Malaya Command.

323. Mr. H. M. McGladdery reports as follows:—

(i) The staff of 'B' Unit takes charge of 120–130 beds, and accepts for admission half of the general surgical emergencies from Singapore. It was decided early in the year to try to limit the number of beds in use and so to ease the burden on the nursing staff and prevent overcrowding in the wards. We have tried to keep Ward 1 to less than sixty-five beds and Ward 2 to less than sixty beds. This at times was impossible and figures of seventy-five patients for Ward 1 have occasionally been unavoidable. To keep down the number of patients we have had to put them on a waiting list and write to them when their turn came, whereas last year we always gave them a date for admission and found a bed for them even when overcrowding resulted. Our waiting list has grown steadily and has 360 names on it. Patients with non-urgent diseases or deformities have to wait up to six months or more. We were tempted at one time to discharge patients after hernia operations and similar conditions on the third or fourth day after operation. This temptation was resisted for our patients' homes are not suitable for those with painful wounds. With a minimum post-operative period of seven days (longer if the wound does not look well) we have found it impossible to keep up with the numbers demanding treatment. The waiting list has grown in number and the waiting period in length throughout the year. The future for these patients is, however, promising. With the expected transfer of the E.N.T. cases out of our wards to new accommodation, we shall have ten invaluable beds added to us for general surgery. When the new theatres are in use, and even more beds are given to us in the new building, I believe for a time, we shall be able to admit patients within a few days of their first visit to us. This would be an achievement of which Singapore should be proud. Few other countries have managed it despite their efforts to do so.

Ward 1 Admissions = 3,561 — Average bed situation = 70–75
Ward 2 Admissions = 2,448 — Average bed situation = 55–60
Major Operations = 1,585
Minor Operations = 2,023
Surgical Out-patients — New cases = 2,340
Repeats = 31,326

(ii) 'B' Unit takes its share in teaching surgery for the University of Malaya. With the help of Dr. Vellasamy the unit has devoted considerable time to the students sent to it. At least seventy students have received training in clinical surgery. The clinical material and teaching from 'B' unit are essential to the proper training of medical students from the University. They enter our wards, operation theatres and out-patient departments for three hours every day of the week. The new out-patient department gives us a better room for seeing patients and teaching on them than we have ever had before. We give teaching its proper place; that it is necessary to the students and valuable to the teacher. Nevertheless it has to take second place to treatment of the public. I mention the teaching we do because little, if any, reference is made to 'B' Unit's teaching activities in the calendar of the University. We have had a good year and look forward to expansion in 1954.

324. The Orthopædic and Traumatic Unit is under the direction of Professor J. A. P. Cameron. In addition to the accommodation occupied in the General Hospital, this division also includes:—

(1) The St. Andrew's Orthopædic Hospital at Siglap with approximately 120 beds. Here children with bone and joint tuberculosis are treated together with a few cases of poliomyelitis.

(2) A ward at Middleton Hospital (City Council) with approximately forty beds for the treatment of early cases of poliomyelitis.

(3) A ward at Tan Tock Seng Hospital with approximately sixty beds with adult bone and joint tuberculosis and cases of paraplegia.

(4) The Red Cross Home at Tanah Merah with twenty beds for crippled children.

325. During the year, a total of 2,656 in-patients were treated in the General Hospital wards and a total of 6,573 operations were performed. In the out-patient section, a total of 2,540 new cases were seen and so were 10,120 repeat cases.

ST. ANDREW'S ORTHOPÆDIC HOSPITAL, SIGLAP

326. This open-air hospital for the treatment of children with bone and joint tuberculosis and poliomyelitis has continued to give the most pleasing and worthwhile results.

327. A new ward has been built to increase the accommodation to 120 beds. This will relieve to some extent the long waiting list and make provision for approximately eighteen children in Ward 18 at the General Hospital awaiting transfer.

328. In future it is intended that only those children with bone and joint tuberculosis requiring operative treatment will be admitted to Ward 18 provided there is post-operative accommodation for them in St. Andrew's Orthopædic Hospital.

329. A resident medical officer is really required now at St. Andrew's Hospital, Siglap. It is considered that this appointment could be well filled by a medical officer engaged in research work attached to the Orthopædic Department.

330. The development of operating facilities in St. Andrew's Orthopædic Hospital theatre in order to relieve congestion in the General Hospital will receive consideration as soon as a resident medical officer is available.

331. The work in the hospital has followed the more recent trends in the treatment of bone and joint tuberculosis. In brief, this is directed towards the treatment of the early case with rest and chemotherapy: in later cases, drainage of abscesses with chemotherapy, both local and systemic, aided by rest, healthy surroundings, nutritional care, education and diversional therapy, and osteotomy or arthrodesis of joints in the healed cases of suitable age. A long period of ambulant treatment in many cases requires further consideration where the homes are unsatisfactory.

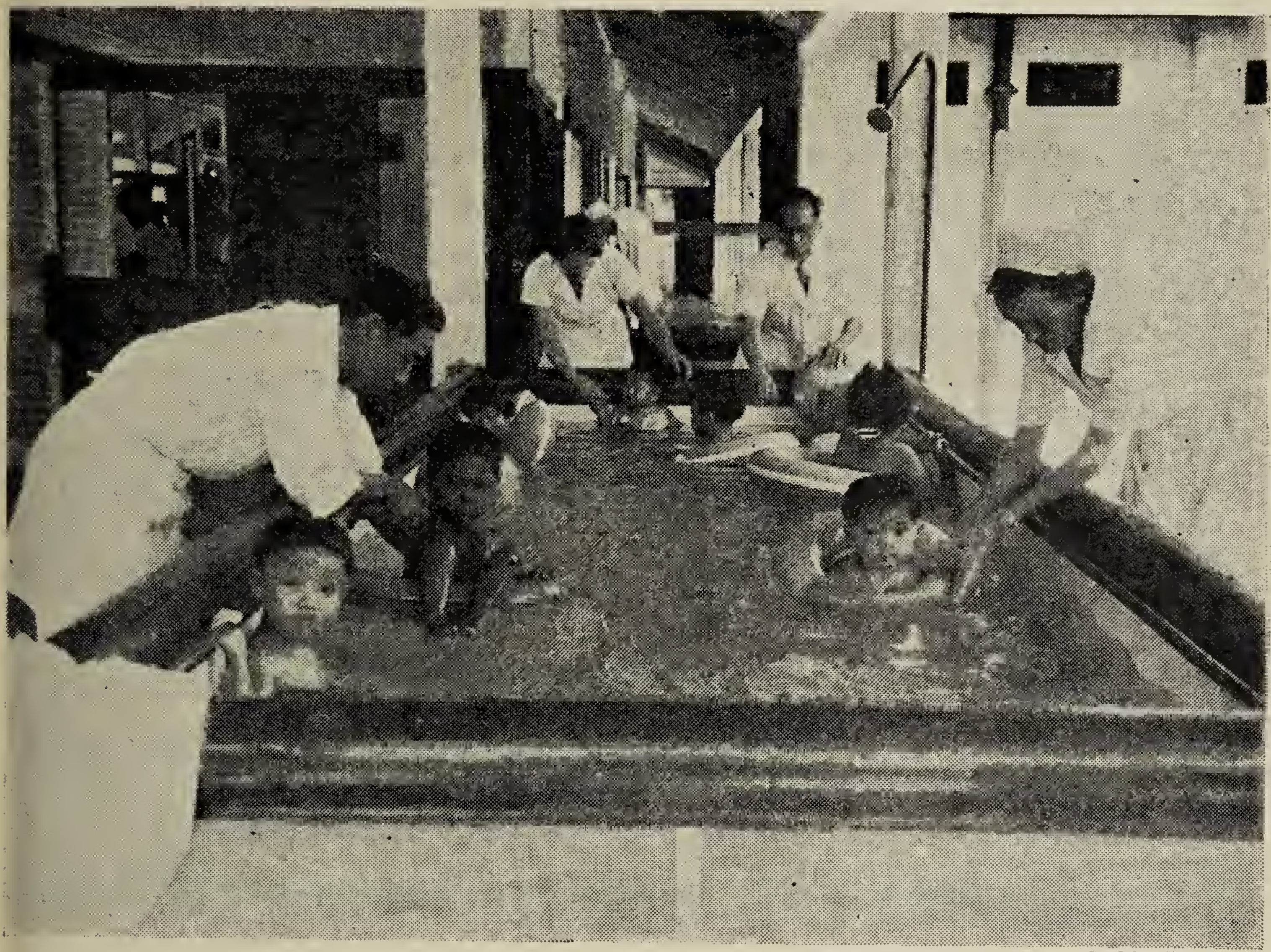
332. Regular visits are paid to this hospital by a physiotherapist. Educational instruction was carried out by voluntary helpers.

MIDDLETON HOSPITAL (POLIOMYELITIS WARD)

333. Approximately forty beds were reserved in this hospital for the treatment of early cases of poliomyelitis, and 35 new cases were treated. A small physiotherapy section has been conducted under the direction of the Surgical Physiotherapy Department.

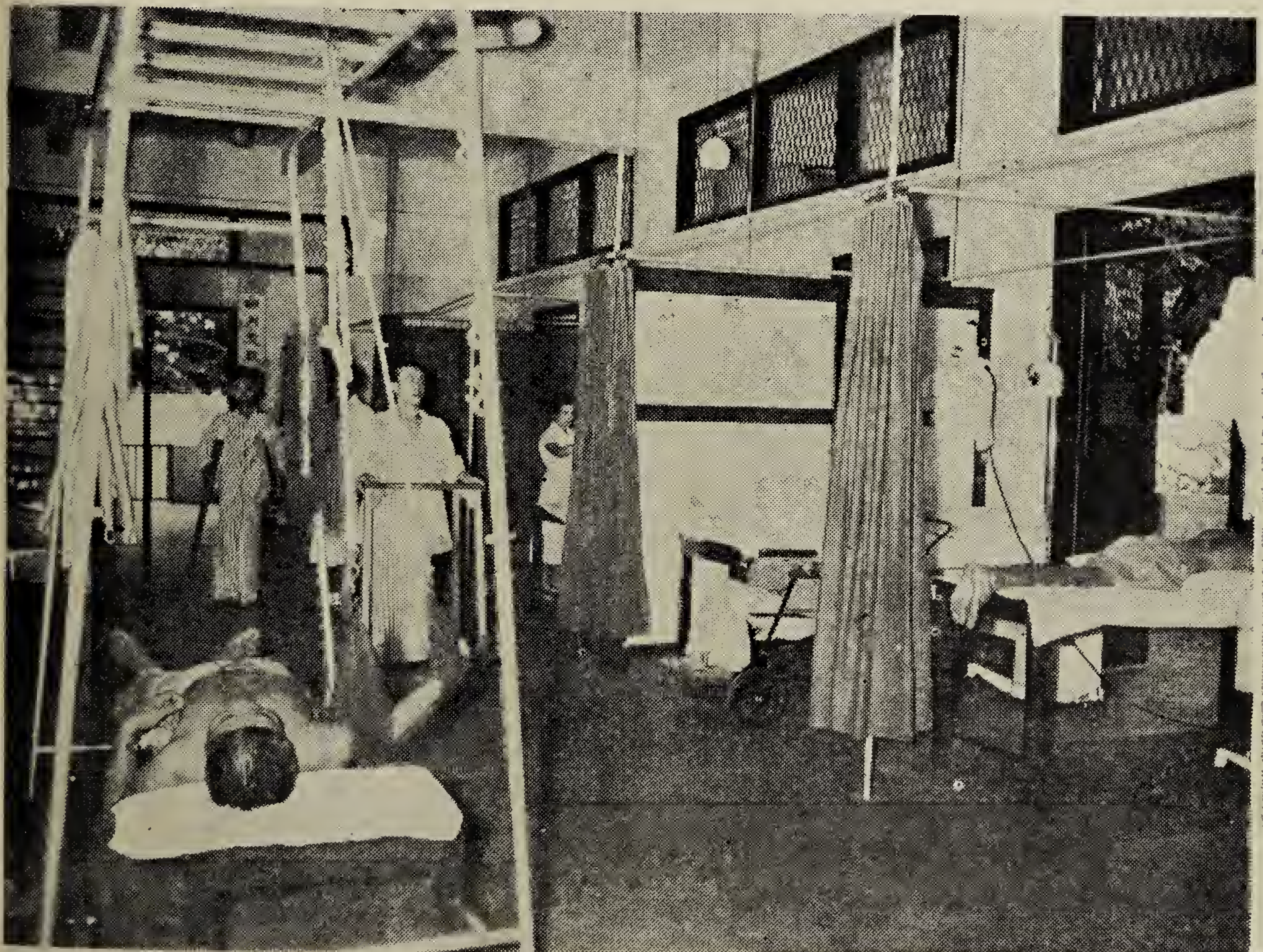
TAN TOCK SENG HOSPITAL

334. There are approximately 60 adult male cases of chronic bone and joint tuberculosis and paraplegia.



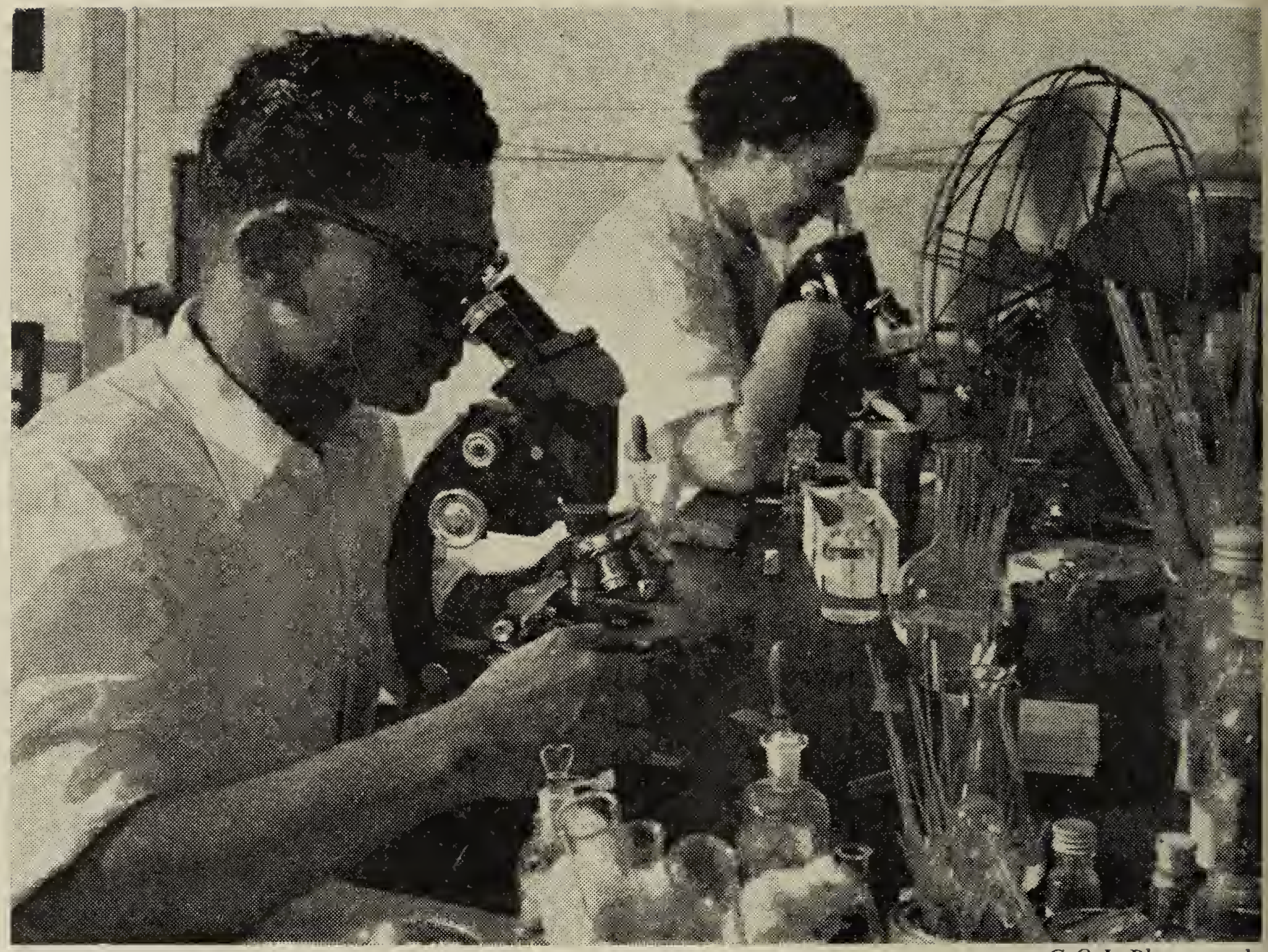
Public Relations

Middleton Hospital—Poliomyelitis cases receiving Physiotherapy treatment



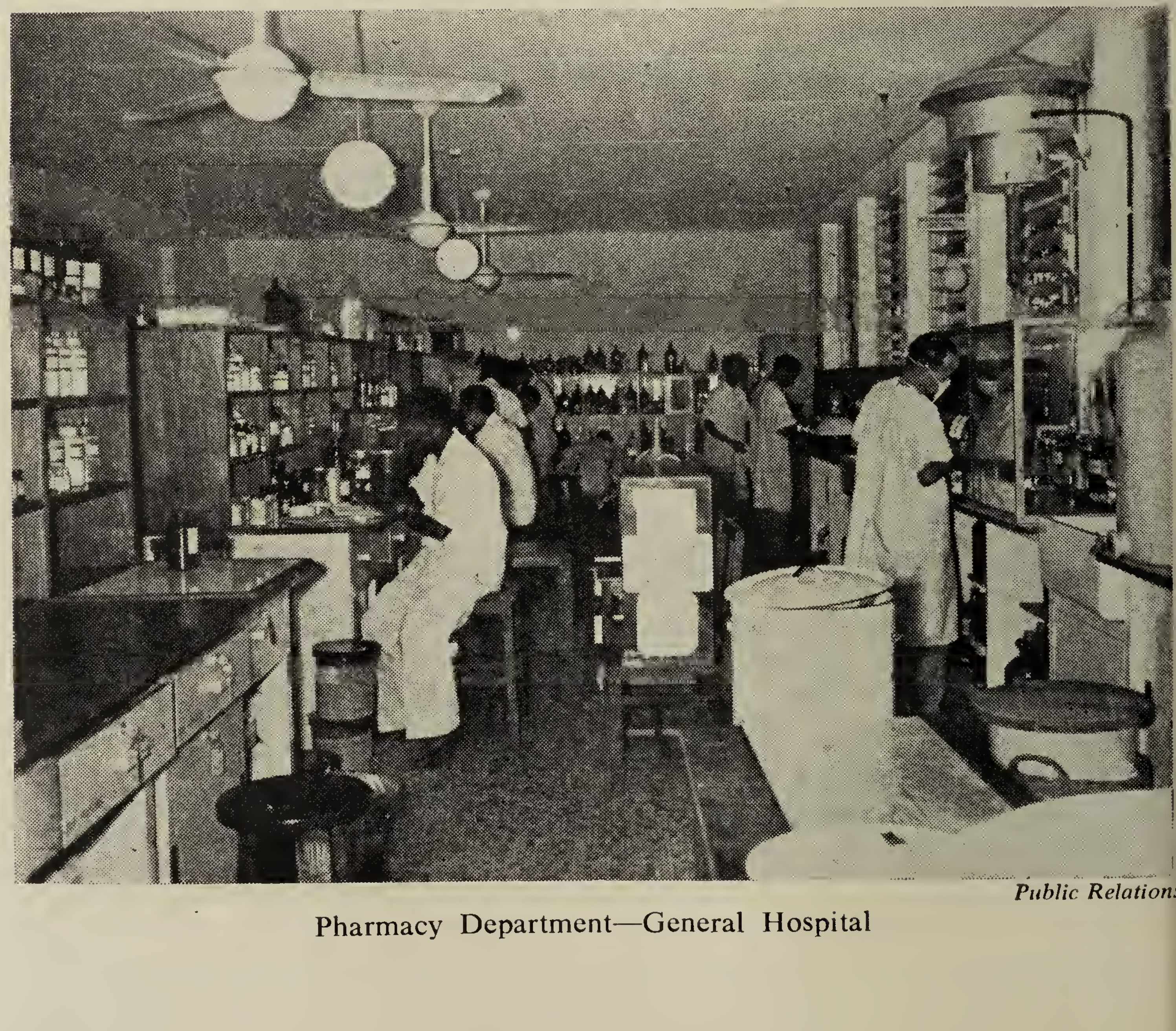
Public Relations

Physiotherapy Department—General Hospital



C.O.I. Photograph

General Hospital, Singapore. The Pathology Laboratory. Woman doctor in background



Public Relations

Pharmacy Department—General Hospital

RED CROSS HOME FOR CRIPPLED CHILDREN, TANAH MERAH

335. In this home twenty children are cared for and a part-time physiotherapist visits the home each week.

336. Physiotherapy, occupational therapy and rehabilitation sections form part of the Orthopædic Unit.

PHYSIOTHERAPY DIVISION

337. This division is divided into two separate units—one surgical and one medical.

338. The Surgical Physiotherapy Department is closely associated with the Orthopædic Unit and is under the control of Miss McClymont C.S.P.

339. During the year there has been an increasing demand in all hospitals, and the work done has been restricted only by the staff available. At the end of the year, four members of the staff were permanent officers and four temporary. The hospitals owe a debt to those temporary married officers without whose services the work of this department would have been considerably reduced.

340. The gymnasium is under the direction of Mr. Chong Kow Thye. Here classes of remedial exercises are held daily for all male ward cases able to attend. Special attention has been given to the rehabilitation of amputees, with instruction in the use of artificial limbs and crutches.

341. A weekly gymnastic class for nurses has been conducted by one of the physiotherapists.

342. The following returns indicate the volume of work done:—

Out-patients treated in the department	19,912
Ward patients treated in the General Hospital ...	18,568
Poliomyelitis treatments given in the General Hospital	2,615
Treatments given in the Gymnasium	6,950
First attendances in the Gymnasium	579
Chest cases treated at Tan Tock Seng Hospital ...	13,308
Chest cases—first attendances at Tan Tock Seng Hospital	271

343. The Medical Physiotherapy Unit is under the direction of Miss Uniacke. During the year, the number of attendances totalled 30,571 with 1,825 new cases.

344. The value of the Physiotherapy Department cannot be over estimated. It enables patients to be discharged from hospital much sooner in a condition in which they can carry on with their employment instead of remaining helpless cripples.

OCCUPATIONAL THERAPY DIVISION

345. The staff of this section at the end of the year consisted of one full time occupational therapist and one part time together with two untrained assistants.

346. The division caters for both out-patients and in-patients. During the year the total number of treatments carried out was 2,779 giving a monthly average of 230. In addition to this, 9,113 visits were paid to patients in the wards giving a monthly average of 759.

THE EAR, NOSE AND THROAT DEPARTMENT

347. This Department is under the direction of Dr. Au Kee Hock, L.M.S., Singapore who reports as follows:—

(i) The Ear, Nose and Throat Department has been working as a separate unit since the latter part of 1953 except for sharing the bed accommodation in Wards 1 and 2. The bed problem is acute as the 'B' Unit is on call on alternate days.

(ii) There are still no adequate facilities available for the after-care of minor operations and endoscopic cases, due to lack of a recovery room. Testing of hearing and audiogram readings is handicapped due to lack of sound-proof conditions. The staff at present consists of two medical officers and myself.

(iii) The work has increased as shown below, and the out-patients are attended to almost daily instead of the usual out-patient sessions thrice weekly.

Out-patients 1952 ...	...	New cases	4,126	Repeats	10,541
Out-patients 1953 ...	...	New cases	5,492	Repeats	10,806
Operations 1952 ...	...	Major	1,186	Minor	739
Operations 1953 ...	...	Major	1,686	Minor	1,008

(iv) In view of this it is very essential and necessary that the suggested Ear, Nose and Throat Unit in Wards 10 and 11 be made available as soon as possible so that the present adverse conditions can be remedied and the bed problem solved. The most affected are the school children who are not given the opportunity of having their operation done during the school holidays.

Note:—This unit has had to be accommodated in pre-war accommodation so far. A new and separate division for it is a part of the 1954 improvements.

THE EYE DEPARTMENT

348. Mr. A. D. Williamson, M.B., CH.B., D.O.M.S., F.R.C.S.E, is the Ophthalmic Surgeon in charge of this Department and summarises the work carried out as follows:—

RETURN OF OPERATIONS FOR THE YEAR 1953

Cataract operations	476
Broad Iridectomy	50
Optical Iridectomy	15
Iridotomy	4
Iris Inclusion	6
Excision of Prolapse Iris	24
Excision with purse string suture	4
Parancetesis	33
Needling	75
Diathermy for attachment of Retina	11
Squint operation	21
Tube Implantation	30
Toti's operation	19
Excision of Lach. Sac	9
Mucous Membrane Grafting	71
Enucleation	63
Evisceration	12
Mc. Reynold's operation	276
Foreign Body Extraction	83
Foreign application of magnet	7
Tarrsorrhaphy	13
Chalazion	241
Expression for Trachoma	120
Diathermy for vessels, corneal ulcers and eye lashes	181
Diathermy for Prolapse Iris	5
Exenteration	1
Marginal Sclerotomy	35
Cyclodialysis	6
Linear Extraction	9
Arruga's operation	45
Various	573
Total ...	2,518

Total No. of Major Operations ...	1,277
Total No. of Minor Operations ...	1,241
Total ...	2,518
1952 ...	2,514
1951 ...	1,898

349. The up-to-date Ophthalmic Division with its compact out-patients section and operating theatres was completed in 1948. This is probably the most modern and best equipped Ophthalmic Department in existence in this part of the world.

THE ANÆSTHETIC UNIT

350. Dr. E. G. Hudson, M.R.C.S., L.R.C.P., F.F.A., the Senior Anæsthetist reports as follows:—

(i) The following is an analysis of the anæsthetics administered during 1953.

Operating Theatre	*General*	*Spinal*	*Local*	*Major*	*Minor*	*Total*
'A' Theatre ..	1,736	505	1,361	2,171	1,431	3,602
'B' Theatre ..	1,759	633	664	1,582	1,474	3,056
'D' Theatre ..	1,529	3	733	699	1,566	2,265
E.N.T. ..	355	..	371	598	128	726
Kandang Kerbau	3,811	208	36	999	3,056	4,055
Eye Department ..	250	..	..	150	100	250
Dental Clinic ..	3,271	..	..	51	3,220	3,271
Total ..	12,711	1,349	3,165	6,250	10,975	17,225

Review of work of Anæsthetic Unit

(ii) There has been a further increase in the total number of anæsthetics administered from 12,397 in 1952 to 17,225 in 1953. The amount of Thoracic Surgery has also increased and during 1953 anæsthesia was administered for 121 major thoracotomies as opposed to 63 in 1952.

(iii) The advantages of the full-time trained anæsthetist experienced in modern anæsthetic techniques cannot be overestimated. Not only is specialised surgery made possible but routine major surgery is facilitated and post-operative complications are reduced. An example of this can be seen by a study of the 267 operations of hysterectomy performed at Kandang Kerbau Hospital during 1953. The general condition of many of the patients was not good, many suffering from anæmia, and some from malignant disease. There were no deaths attributable to anæsthesia. The average post-operative length of stay in hospital was eight days.

(iv) *Teaching:* The anæsthetic unit continues the teaching of the basic principles of anæsthesia to medical and dental students and more advanced tuition to the Medical Officers.

(v) *Visiting Anæsthetists:* During the year Dr. Bernard Johnson, President of the Faculty of Anæsthetists, Royal College of Surgeons of England, visited the hospitals and gave a lecture to the Surgical Society on controlled hypotension in anæsthesia.

351. Professor R. R. Macintosh, Head of the Department of Anæsthesia, University of Oxford, also visited the hospital.

DERMATOLOGY

352. The special out-patients clinic was during the year under the direction of Lt.-Col. R. D. Menzies, R.A.M.C., who reports as follows:—

(i) *Figures*

RETURN OF SKIN CASES FOR YEAR ENDING DECEMBER 1953

Nationalities	NEW CASES				REPETITIONS			
	Male	Female	Child	Total	Male	Female	Child	Total
Chinese	606	1,578	895	3,079	1,181	1,673	718	3,572
Indians	591	130	98	819	562	151	108	821
Malays	179	67	78	324	164	72	29	265
Eurasians	15	22	6	43	18	22	7	47
Others	22	19	9	50	6	5	6	17
Total	1,413	1,816	1,086	4,315	1,931	1,923	868	4,722
Diseases	Male	Female	Child	Total	Male	Female	Child	Total
Mycoses	93	40	20	153	79	42	10	131
Impetigo	19	22	89	130	87	37	57	181
Prurigo	144	34	8	186	22	76	13	111
Psoriasis	42	26	7	75	122	62	6	190
Dermatitis	309	517	104	930	412	594	120	1,126
Eczema	178	68	96	342	89	194	159	442
Pompholyx	73	72	18	163	82	106	19	207
Lupus Erythem	19	26	50	95	16	27	4	47
Lupusvulgaris	11	3	5	19	18	9	52	79
Yaws ..	..	1	1	2	..	..	..	..
Acne ..	26	16	3	45	28	29	..	57
Scabies	21	10	36	67	11	8	18	37
Leprosy	87	5	6	98	..	..	..	..
Folliculitis	18	3	33	54	34	6	22	62
Pruritis	85	81	8	174	154	40	15	209
Pyodermia	8	15	26	49	16	12	33	61
Podopompholyx	11	7	2	20	5	23	2	30
Vitiligo	106	70	18	194	..	..	..	..
Warts	39	9	12	60	29	34	42	105
Others	124	791	544	1,459	727	624	296	1,647
Total	1,413	1,816	1,086	4,315	1,931	1,923	868	4,722
Grand Total	9,037	..	..	..	..	..	..	..

(ii) *General*

Skin diseases are very prevalent in Singapore and over four thousand new cases were seen this year. When the New Out-patients Department opened the Skin Clinic moved there and the new accommodation is good.

(iii) *Diseases*

(*a*) *Leprosy:* The majority of cases are tuberculoid and these are referred to the Tan Tock Seng Hospital for treatment as out-patients. Lepromatous cases are sent to Trafalgar Home.

(*b*) *Dermatitis:* This constitutes the largest group and many cases are due to previous medication.

(*c*) *Scabies:* The number of new cases is on the decrease.

(*d*) *Skin Carcinoma:* This condition is rarely seen.

DIETETICS

353. Until the second half of the year, Miss Dryden was the only qualified dietitian in this important division. In August, Miss Luther was appointed and the position was more satisfactory.

354. Miss Dryden reports as follows:—

Kitchen Staff

(i) A routine medical check-up with chest X-ray on all kitchen staff was instituted at the beginning of the year and is to continue since it is obvious that those dealing with food especially in a hospital should have a high standard of fitness.

(ii) It has been decided that a more rigorous individual standard of cooking should be imposed and the junior cooks are to be examined at intervals and given test meals to prepare and cook with this in mind, in order that a spirit of competition may induce them to become more proficient.

(iii) It is believed that the institution of a trade of Hospital Cook would act as encouragement in this respect to those of greater talent and ambition than the average hospital attendant.

Catering

(iv) All wards are now supplied with electrically heated trolleys for collection of food, and services to the patient had therefore been improved.

(v) All kitchens were repainted in the year and the facilities were improved by the addition of a further room for the preparation of fish, vegetables, etc., a task previously done out of doors.

Costs

(vi) The costing figures have been estimated by the Chief Steward, Mr. Klyne, based on issues of food stuffs made by him to kitchen and wards.

	Daily average
	$ c.
Paying patients (*a*)	5 19
Paying patients (*b*)	2 97
All children	1 48
Free	1 04

Special Diets

	Average per day
Paying patients (*a*)	4
Paying patients (*b*)	11
Free	38

(vii) The therapeutic angle of dietetics in the hospital is somewhat disappointing because—

(*a*) there are many special diets ordered and supplied but few dietitians to supervise them and very often patients are receiving food from other sources not allowed in their diet regime;

(*b*) the average stay in hospital is sometimes too short to estimate the effect of a diet and there are no follow-up dietetic clinics for out-patients.

ALMONERS DIVISION

355. This Division was under the direction of Miss Eastaugh (née Mrs. Mumford) during the first half of 1953 and for the second half under Miss Graham. Three full-time almoners were available by the end of the year.

356. This is a new and expanding Division and the number of new cases registered during 1953 was almost double that of the previous year—the actual figures being 1,566 new cases in 1952 and 3,051 in 1953.

357. It was possible during the year to open a new Almoner's Office in the new Out-patients Department in September. This office alone deals with about 1,000 patients every month.

358. The Almoners Division also maintains a Register of Blind, Deaf and Dumb and Mentally Defective Children. At the present time there are 139 names on the Blind Register and 104 names on the Register of Mentally Defective Children.

359. In addition to its normal duties the Almoners Division is intimately connected with the scheme for the training of Almoners in conjunction with the University of Malaya. The University provides a Course of Social Studies and the Almoners Division through the Training Committee supervises the specialized training additional to the University Course, and a series of lectures on specialized medical subjects has been organized. In addition, the Almoners Division supervises the practical training of the students who work under the various almoners learning to apply their theoretical instruction in a practical way in helping the sick in Singapore.

CHAPTER EIGHTEEN

TAN TOCK SENG HOSPITAL

360. Tuberculosis was again the most communicable disease in Singapore and it continued to receive very considerable attention in the public press. The work of the Division has been expanded steadily from year to year over the post-war period and 1953 was no exception. Apart from beds at the General Hospital for certain non-pulmonary form of the disease and for chronic cases at the Children's St. Andrew's Orthopædic Hospital, 450 beds at this institution were made available throughout the year. These will be raised to 1;100 to 1,200 under the accepted Medical Scheme. Planning in this connection proceeded with the intention of starting with a new 216 bedded block in 1954.

361. Tan Tock Seng Hospital continued its role as the main Government Tuberculosis Centre. Dr. C. E. Smith took over the duties of Medical Superintendent from May 1953, when Dr. R. J. Grove-White proceeded to United Kingdom on leave. Dr. R. J. Grove-White and Dr. C. E. Smith are in charge of the two units; Dr. G. E. L. Cummins relieving Dr. Grove-White when he went on leave.

362. In 1953 a further 3,681 new cases were referred to the hospital for assessment and treatment. Of this total 2,077 were proved to have active pulmonary tuberculosis and were given the appropriate treatment. This compares with the total of 3,401 assessment cases in 1952, of which 2,028 were confirmed as tuberculous. Of course most of them are still attending. The total number of out-patients in regular attendance is now over 6,000. Some 17,000 cases have passed through this clinic since 1946.

363. Due to the general availability of X-rays at Government institutions and at the Royal Singapore Tuberculosis Clinic, and as Government, the City Council and many private firms have also instituted routine X-ray pictures as part of the general physical examination of all recruits to the service, large numbers of cases are being detected.

364. The main effort by Government has been directed to treating those cases in which the disease can be arrested. At present over a million dollars is being spent each year on allowances for treatable cases, and this is only the beginning. Not much has been attempted for the hundreds of very advanced cases for whom nothing can be done. Admission of these patients into hospital, and the institution of modern treatment and good diet, inevitably means a rapid increase in the proportion of chronic wards and reduction in accommodation available for cases more likely to respond satisfactorily to treatment.

365. Crude death rates from pulmonary tuberculosis show a considerable decline since the liberation in 1945, and a striking improvement over pre-war figures. Taking the 1939–41 death average as 100 (2,288 per million), the 1947 index was 68 (1,550) 1948, 65 (1,491), 1949, 57 (1,315), 1950, 52 (1,193), 1951, 48 (1,096), 1952, 39 (888) and 1953 (32) (724). These figures have been subject to criticism as a proportion of deaths are still not certified by a qualified medical practitioner. It is more than probable, however, that deaths from other causes wrongly entered as pulmonary tuberculosis have outnumbered mistakes the other way round. In consequence this decline can be taken as actual.

366. The morbidity rate is still a matter of speculation and will continue to be so until a tuberculosis survey is carried out with the assistance of World Health Organization.

ADMISSIONS

367. In-patient admissions for tuberculosis in the Government Hospitals in Singapore during 1953 are set out in the table below. These do not take into account the short duration of stay of those cases admitted to the General Hospital as medical emergencies, and later found to have tuberculosis, nor many of the 367 Tan Tock Seng Hospital cases admitted for phrenic crush operations and bronchoscopic examinations which are in most cases done on patients specially admitted for a few days for these purposes.

	In-patients
TAN TOCK SENG HOSPITAL	
Pulmonary	1,750
Bones and joints	40
Other forms	10
GENERAL HOSPITAL	
Pulmonary	537
Bones and joints	217
Other forms	283
ORTHOPÆDIC HOSPITAL	
Bones and joints	78
Other forms	59

368. Admission into Tan Tock Seng Hospital is made from the waiting list of patients according to their various priorities on medical and social grounds. With the limited bed accommodation it is impossible to admit all cases, and it is obvious that there must inevitably be some delay in admitting those cases which certainly require hospitalization.

RETURN OF WORK DONE IN THE WARDS—1953

A.P.	Induction	23
	Refills	156
P.P.	Induction	248
	Refills	5,589

TREATMENT

369. Treatment follows the generally accepted principles. Emphasis is placed on rest. This is hard to enforce on the out-patients, but its importance is repeatedly impressed upon them by all members of the staff in the clinics and also by the health nurses on their visits to the patients' homes.

370. Each case is assessed on its own merits, and where indicated, active cases receive a course of the drugs—streptomycin in combination with P.A.S. or I.N.A.H., in some instances with both. Sometimes P.A.S. and I.N.A.H. are given together without streptomycin—to be followed, where necessary, by some form of collapse therapy such as pneumoperitoneum or pneumothorax.

371. Interest in thoracic surgery steadily increased. Seventy-six thoracoplastics and resections were performed as compared with seventeen for 1952. These cases were operated on by the surgeons in the General Hospital and two to three weeks later were transferred back to Tan Tock Seng Hospital.

A very considerable modernization and improvement in the surgical divisions, both from the theatre and ward points of view, are under way. By the end of 1954 surgical accommodation in both these respects should be available on a most modern basis. In consequence, for the time being any chest surgery required will be amply provided for.

OUT-PATIENT STATISTICS FOR TAN TOCK SENG HOSPITAL

	New Cases	*Repetitions*
ROTARY T.B. CLINIC		
T.B. cases	2,077	130,168
Assessment cases	1,604	—
GENERAL O.P.D.		
Non-T.B. cases	5,272	16,154
Leprosy cases	555	16,625

ROTARY TUBERCULOSIS CLINIC

372. The steady increase in the number of patients coming forward—137,613 attendances for 1953 as compared with 104,365 for 1952—has taxed the out-patients clinic to the utmost, with the result that it was found necessary to relieve the congestion by transferring the refill and injection sections to one of the wards. Out-patients' demands must be expected to increase, and although double the number of beds will be available in the new plan, the establishment of out-patients clinics in other parts of the Colony are being considered as a part of a general out-patient-cum-cottage hospital scheme.

373. The graphs reveal the steady increase year by year in the out-patient services provided at the Rotary T.B. Clinic, and we can justly be proud of the amount of work accomplished. Every case so far coming forward has been accepted, examined, investigated and treated. This does not call for complacency or for relaxation of effort, however. There is still much to be done and many problems to be tackled such as the rehabilitation of those who have recovered, the housing of the destitute, and the looking after of the chronic positive case.

DESTITUTE TUBERCULOSIS CASES

374. The Chinese Advisory Board formed the Singapore Tuberculosis Home Association in June 1953, and this new Association proposes to acquire about twenty-three acres of land off Yio Chu Kang Road for the construction of a Home for tuberculous cases who are destitute. It is intended that a start should be made on 100 beds, but in view of the large number of advanced destitute cases desiring admission a very much more extensive institution will be required before the problem is coped with adequately.

WORKS AND BUILDINGS

375. During the year the Public Works Department converted three semi-detached medical officers' quarters into a hostel for Student Nurses. At the close of the year work was being pushed ahead on the construction of three prefabricated huts for the Diversional Therapy Unit, The Training School for Assistant Nurses, and a dining-cum-sitting room for Student Nurses.

376. In the Rotary Tuberculosis Clinic the four small cubicles in which artificial pneumothorax and pneumoperitoneum therapy was performed, were enlarged to provide four rooms for medical officers, and as stated previously the refill and injection sections were transferred to one of the wards.

377. The overall plan for the new Tan Tock Seng Hospital was approved by the Committee of Management in November. In brief, this seeks to concentrate at Tan Tock Seng Hospital in six storey blocks the whole of the 1,100 to 1,200 beds of the Medical Plan scheduled originally for two hospitals. The possession of twelve acres of vacant land adjoining the hospital grounds will enable construction of this hospital to proceed without causing disruption of work to any great extent.

378. In view of the fact that tuberculosis continued again to attract special attention, pressure was exerted to expand the work of this Division of the Medical Services far beyond the scope envisaged in the Medical Plan and far beyond the possible capacity in staff, accommodation and finance in the foreseeable future. Taking all existing circumstances into consideration, tuberculosis work has been expanded to a remarkable extent over the post-war period. Present out-patient and in-patient treatment is beyond any comparison with any previous decade. Chest X-ray examinations at Tan Tock Seng Hospital alone came to 36,871 out of a total of 55,349 chest examinations for the whole service. This compares with a total of all X-ray of only some 21,000 in 1948 and 6,000 in 1938.

379. Laboratory examinations reached a total of 88,285 for 1953.

ALMONERS DIVISION

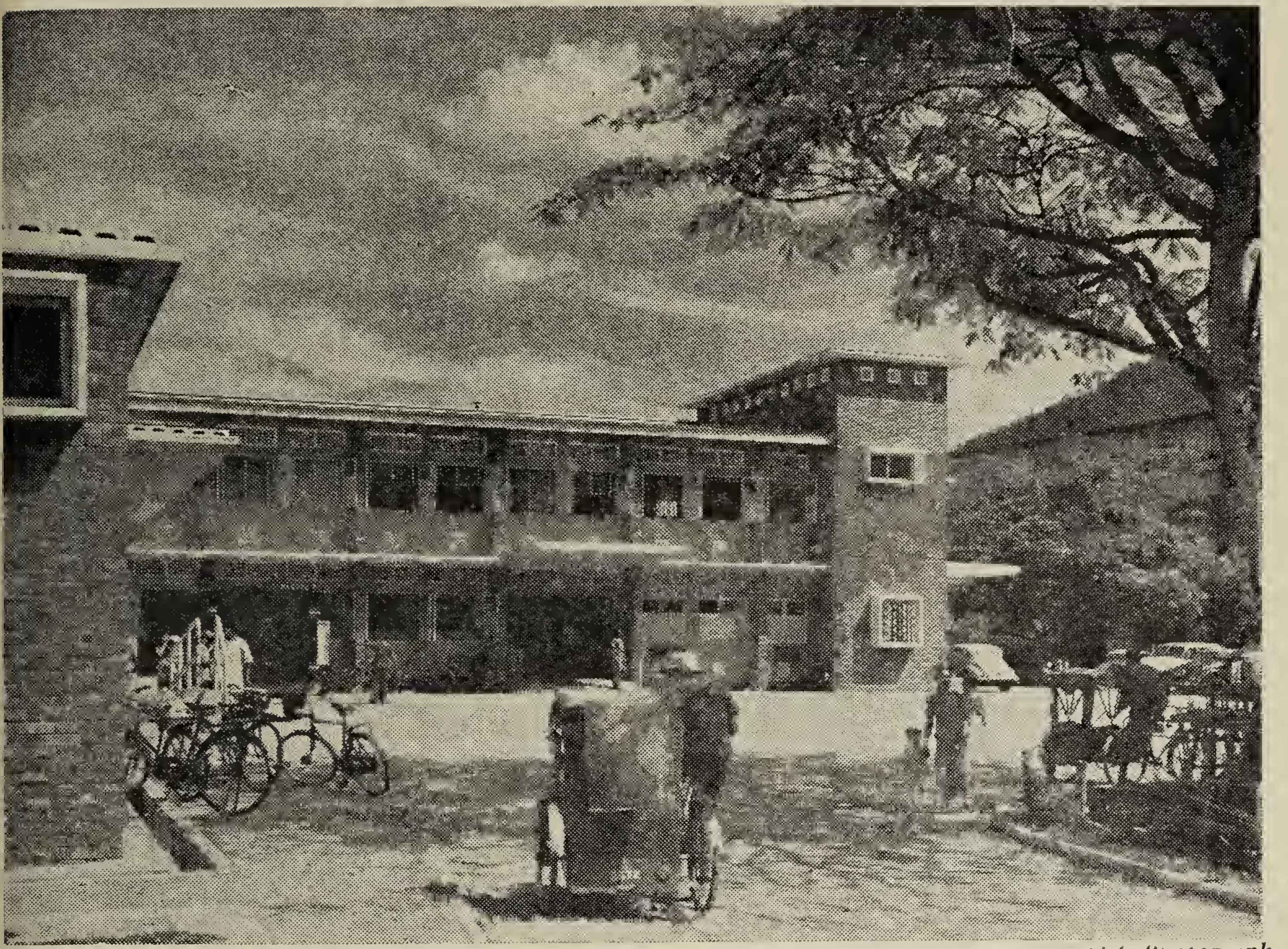
380. During 1953 attendance at the T.B. Clinic has increased by 40 per cent. New cases have increased by 12½ per cent. This has, as usual, reflected on the numbers attending the Almoner's department and the average number of patients seen daily was 200. It is thought that this increased attendance is due to:—

(1) patients returning to their friends and telling them of the services rendered where they were helped, treated kindly and encouraged to get better. On many occasions people came for advice on their many and varied social problems, such as wanting work, being in financial, domestic and other difficulties, and because they had been told that help would be given. Such cases are referred to the appropriate Government department or if ill to our medical out-patients department or to another hospital where appropriate treatment may be given;

(2) The Singapore Anti-Tuberculosis Association's intensive propaganda which has encouraged more people than ever to go to the Royal Singapore Tuberculosis Clinic for their initial X-ray, either on their own initiative or at the request of their doctor employer or private clinic. The Singapore Anti-Tuberculosis Association itself refers to Tan Tock Seng Hospital numerous patients who are unable to pay for treatment, and who cannot be accepted on its limited free list. Other Singapore Anti-Tuberculosis Association patients attending their Clinic ask to be transferred, where there are home difficulties, in the hope of admission to Tan Tock Seng Hospital wards;

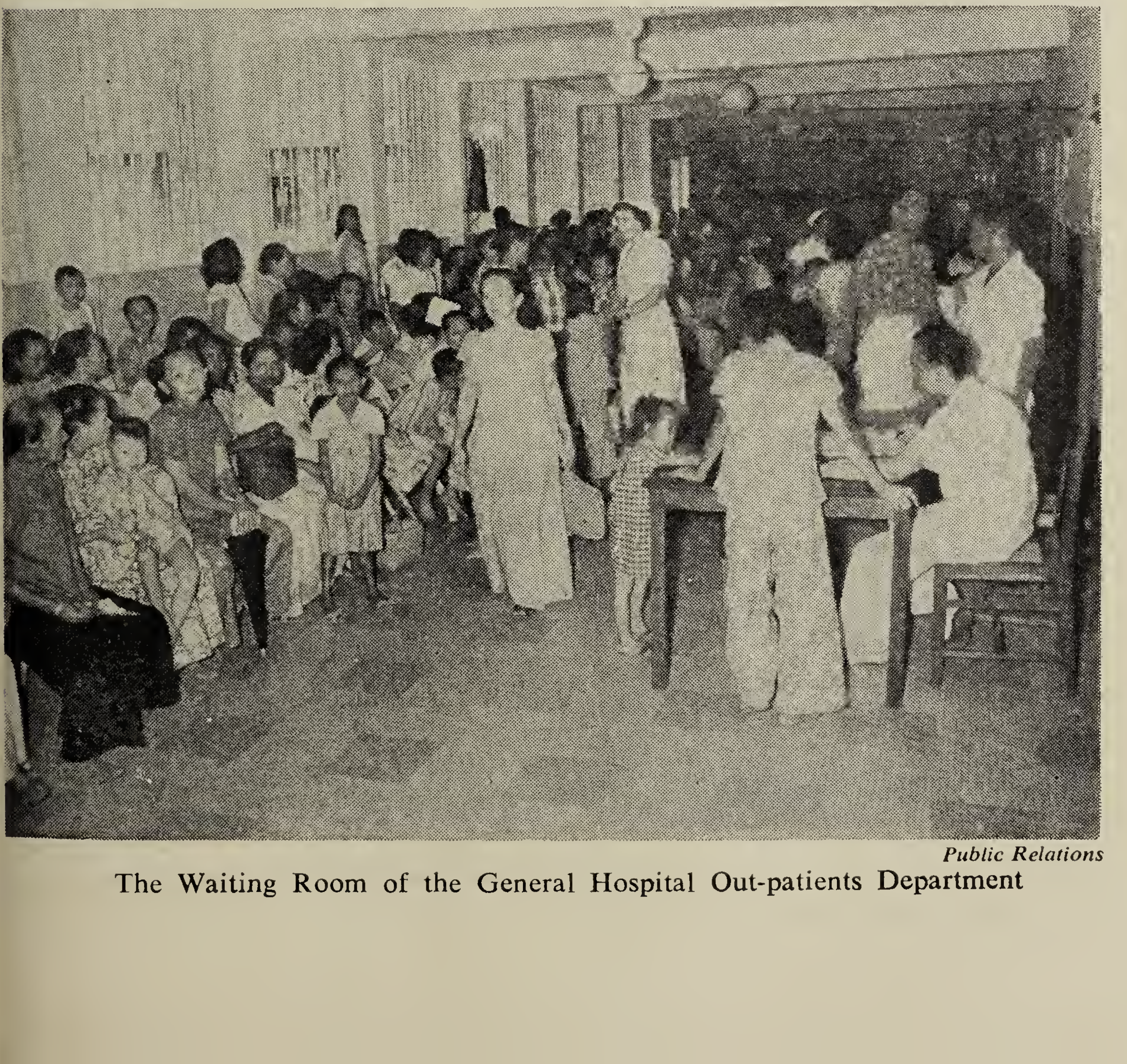
(3) the work of the Health Nurses attached to the contact clinic, and their following up of the families of patients on T.B. allowances. It is fairly common to find more than one member of a family suffering from this disease;

(4) the school clinics sending cases which have been discovered on routine examination.



C.O.I. Photograph

Singapore General Hospital Out-patients Department

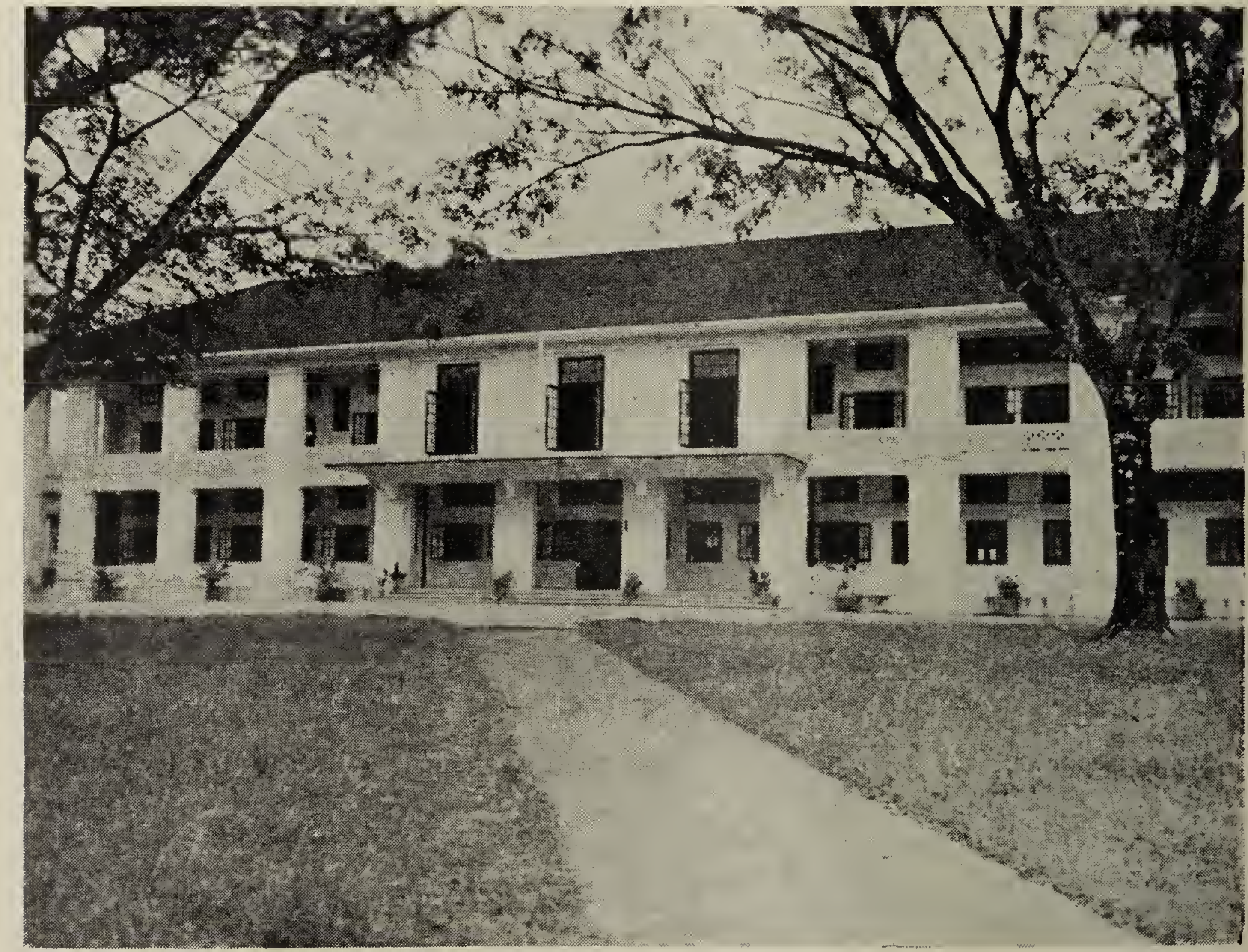


Public Relations

The Waiting Room of the General Hospital Out-patients Department

Public Relations

The Tuberculosis Out-patient Rotary Clinic at Tan Tock Seng Hospital



Public Relations

Woodbridge (Mental) Hospital

381. This increase has meant that much of the proper case work which should be dealt with by the two Almoners has, of necessity, been neglected. The taking of social case histories, which is required before any appreciation of the family needs can be made, and the constant checking of eligibility for continuing allowances from Social Welfare, has absorbed most of the time. It is not unusual for an Almoner herself to see 80 to 100 patients in a morning, leaving the clerks to deal with all the routine work, payment of fares, etc.

T.B. Treatment Allowances

382. The number of patients on these allowances, which greatly facilitate the patient getting a reasonable standard of diet and an adequate amount of rest, so important if the medical treatment is to give the best results, reflects the increasing work.

Allowances have increased from 770 cases registered in 1951 to
914 cases registered in 1952 and
1,001 cases registered in 1953.

383. This last figure comprises over 78 per cent of all T.B. Treatment Allowances in the Colony.

384. The number of new patients in this group remains fairly steady. About 500 per month after investigation of social difficulties receive certificates in order to get the minimum allowance.

385. Finding work for patients who have had treatment and who are then considered fit to return to their previous or other employment is still one of the major problems. The Services Departments are most co-operative in making periods of light work available; so are some of the larger firms. Certain occupations are however of such a character that the ex-tuberculosis patient cannot return to it, e.g. the work in the Police Force. In these and similar cases the Labour Exchange has given every assistance during the year in placing persons in suitable employment.

386. A disheartening feature in the Almoner's daily routine relates to the number of people who report to her on their difficulties of finding employment even after considerable effort. These patients when their Tuberculosis Treatment Allowance has ceased receive for three months an allowance from the Silver Jubilee Fund after which they are transferred to the General Relief and Sickness Fund, which is usually smaller than their original T.B. Treatment Allowance. In consequence a person with a family is subject to economical physical and mental stress. In an attempt to help such cases, a scheme was started during the year to employ as many as possible of the ex-patients in temporary work in the hospital. This was to increase their confidence in their own capabilities, to harden them up gradually for other jobs, and to give them the opportunity of looking round for suitable occupations. The patients working in this way have remained well, but getting them employed even after this period has not been easy.

387. Many of our patients live in the few community hospitals available and come regularly to the clinic for treatment. These hospitals are supplying a great need, and are doing excellent work.

388. A steady number of patients were referred from this department to the Almoner, chiefly old men with chronic asthma, bronchitis, heart disease, hemiplegias, etc. Many of these need assistance for themselves and their families as most of them are unable to work, and will never work again. On 1,134 occasions patients were helped by the Almoners. Again there is the difficulty of finding accommodation for people in this group who are homeless

and require nursing; there is a long waiting list for the eighty-eight beds that are available for the chronic cases of this hospital and also for those referred from the General Hospital.

389. During the last quarter of 1953 there were 894 attendances of children and adults from this clinic to the Almoner's office; many of the difficulties found in placing T.B. patients in employment are found in this group too, with the added difficulty that many of these cases are visibly deformed. Generally they are stronger and are more able to work, but it is just as difficult to find them work and homes. In addition the wives and children of in-patients of Trafalgar Home come to Tan Tock Seng Hospital to see the Almoner when there are home difficulties.

390. The Government Fund for assistance was exhausted within six months, so a supplementary amount was granted. The Almoner's T.B. Welfare Fund, supported by occasional voluntary donations, was this year, through the kindness of the Teachers' Training College augmented by about $1,000, being half the net proceeds of a charity performance of the 'Mikado'. This fund is used for cases of hardship such as establishing patients after a long period in hospital and for other contingencies not covered by the Government Fund.

Housing

391. The question of finding suitable accommodation for patients remained difficult. Close co-operation with the Singapore Improvement Trust continued. A present need, which it is understood has been recognized, is that much more of the cheap type of accommodation should be made available. Many of the patients qualify for a house, but cannot afford a high rent.

392. Although the increase in work was anticipated staff has remained the same; in fact as a result of the great expansion of work at Tan Tock Seng Hospital and Trafalgar Home, and also as one of the Almoners had to 'cover' the leave period of the Kandang Kerbau Hospital Almoner, every member of the staff was overworked.

393. The numbers above do not include patients seen in the wards or on home visits, or by the Almoner and her interpreter when visiting Trafalgar Home. The present case load is overwhelming; the amount of time necessarily spent in interviewing patients precludes the proper follow-up of the social problems presented, and leaves inadequate time for the routine management of the department. If numbers continue to increase in the future, and it is anticipated they will, the present staff cannot be expected to cope with all the work.

THE TUBERCULOSIS TREATMENT ALLOWANCE SCHEME

394. In the year under review the Tuberculosis Treatment Allowance Scheme provided allowances at scales well above subsistence level to an average of 1,252 patients per month whose prognosis was good and whose return to their former working capacity seemed likely within a reasonable space of time. The Scheme continued to be operated by the Department of Social Welfare with the assistance of the Advisory Committee, Tuberculosis Treatment Allowances, and in close co-operation with the Government Tuberculosis Specialists, the Almoners at the Government hospitals, and with the Royal Singapore Tuberculosis Clinic.

395. Of the 1,275 new cases registered under the Tuberculosis Treatment Allowance Scheme during 1953, over 78 per cent (1,001 cases) were recommended for such assistance by the medical authorities at the Tan Tock Seng Hospital, 16 per cent (202 cases) by the Royal Singapore Tuberculosis

Clinic, 4.63 per cent (59 cases) by the Civil General Hospital, and 9 and 4 cases respectively by the St. Andrew's Mission Hospital and the Royal Naval Asian Hospital. The number of cases re-instated (i.e. those who had been in receipt of allowances under the Scheme prior to being certified fit for light work but who subsequently suffered a relapse) totalled 110, and were spread over the various hospitals in similar proportion to the new cases recommended.

396. It is encouraging to note that 82.3 per cent of the patients whose allowances ceased during the course of the year were certified fit for light work as against 14.0 per cent whose condition had deteriorated and 3.7 per cent on account of death or non-co-operation in the matter of treatment.

397. The basic allowances current under the Scheme in 1953 were:—

	$
Head of household as (i) out-patient ...	45 per month
(ii) in-patient ...	15 per month*
Wife or first adult dependent relative ...	25 per month
Each dependant aged 16 years and over ...	15 per month
Each dependant under 16 years	12 per month

(* $5 per month in the case of a patient with no dependants).

with an additional 10 per cent Cost of Living Allowance on the above amounts and an additional allowance equal to the actual rent paid by the family.

398. The growth of the Tuberculosis Treatment Allowance Scheme over the five years of its existence can be gauged from the following table:—

	Average number of payments per month	*Annual Expenditure*	*Average payment per case per month*
	$ c.	$	$ c.
1949 (April—December) ...	120 00	100,468	69 77
1950	305 42	228,492	62 34
1951	477 83	405,349	70 67
1952	983 75	890,887	75 47
1953	1,252 83	1,239,990	82 48

HEALTH VISITORS' DIVISION

399. This division's activities were confined as in previous years to the investigation of cases in receipt of T.B. Treatment Allowances. Taken over the whole of 1953 the average number of new cases dealt with by the division each month was approximately eighty-three. In only a few instances were far advanced cases specially referred to this division by the Medical Officers and the Almoners.

400. Contact clinics are held twice a week, one session for each unit, and attendances averaged eighty-five per session.

401. Visits to patients are continued at two-monthly intervals until the patient is certified as fit for light work by the Medical Officer in charge of the case. Two or three further visits are made during the following six months in order to ensure that there is no relapse. Cases which are reported by the Medical Officer to be deteriorating or un-co-operative in following the prescribed home treatment are visited more frequently. The total number of visits made to cases and contacts during 1953 was 11,354. Approximately 10 per cent of the home visits were done in the rural areas, the remaining being confined to the urban area.

PHYSIOTHERAPY DIVISION

402. The Physiotherapy division has expanded greatly during 1953. From the beginning of the year until November a part-time physiotherapist visited Tan Tock Seng Hospital on five mornings a week but from June to September, owing to the shortage of staff at General Hospital, it was only possible for the physiotherapist to visit three mornings a week.

403. About June 1953 an out-patients department was started and accommodation was provided for this at the back of the Refill section in a ward.

404. In November, the General Hospital staff having been increased again, it was possible to allocate to Tan Tock Seng a full time physiotherapist since when the monthly average of treatment had increased greatly. If it increases to any greater extent in the near future as seems extremely likely another physiotherapist will be required.

405. The following details of the number of treatments per month amply provide evidence of this:—

	New patients	*No. of treatments*
January	9	900
February	17	857
March	20	1,002
April	3	872
May	13	889
June	6	566
July	21	981
August	15	767
September	29	1,225
October	25	1,221
November	42	1,464
December	71	2,574
Total	271	13,318

TUBERCULOSIS NURSING CERTIFICATE

406. In the Mandalay Road Division of the hospital, Student Nurses are recruited to the nursing service under the tuition of the Franciscan Sisters who train them for the Tuberculosis Nursing Certificate. They complete their tuberculosis training in two years. Successful students proceed to the General Hospital for a further two years for the Certificate of General Nursing. Two Sisters and six Nurses were successful in the Tuberculosis Nursing Certificate Examination held during the year.

ASSISTANT NURSES TRAINING SCHEME

407. This scheme which was commenced in March 1951 and which concentrated more on the practical than on the theoretical aspects of nursing, has made satisfactory progress. It has produced seventeen trained Assistant Nurses, three of whom have been posted to the St. Andrews Orthopædic Hospital at Siglap. During 1953 further recruitment was made and there are now eighty-one Assistant Nurses in training.

VOLUNTARY ORGANIZATION ASSISTING IN TUBERCULOSIS WORK

Diversional Therapy Unit

408. The fifth year of the Diversional Therapy Unit shows a steady progress with nearly three quarters of the patients at Tan Tock Seng Hospital taking part in the work organized by the Unit. The most popular types of handicrafts are the making of felt toys, needlework and knitting, and over 6,200 articles were made by the patients during the year. The teaching, buying of materials, organizing of sales and keeping of stocks for this work has meant a great deal of labour for the forty-two lady volunteers who work two mornings a week at the hospital.

409. No difficulty has been found in disposing of the finished articles, which have been sold in Brunei, the Federation, on P. & O. ships and in Singapore. Every endeavour is made to cover expenditure but the Unit depends on Government financial assistance for the continuation of the work.

410. Many requests from the Federation have been received asking for advice on running diversional therapy, and particulars and materials have been sent to Johore Bahru, Ipoh, Kuala Lipis, Seremban, Malacca, and Seria, Brunei.

411. The branch of the unit at St. Andrews Orthopædic Hospital, Siglap, has done well and four helpers working one morning a week have taught forty-five children needlework.

Red Cross

412. The Red Cross continued its library service on two days a week and this is greatly appreciated by the patients who look forward eagerly to the bi-weekly rounds.

GOVERNMENT TUBERCULOSIS ADVISORY BOARD

413. The Board met on two occasions during the year. The following problems received its particular attention: —

(*a*) Singapore Tuberculosis Home Association scheme (please see paragraph on Destitute Tuberculous Cases);

(*b*) employment of Tuberculous Persons in the Public Service. The Board has made specific recommendations;

(*c*) rehabilitation—The possibility of opening a rehabilitation centre. Dr. R. J. Grove-White was asked to go into the matter of rehabilitation of tuberculous persons whilst on leave in the United Kingdom. Following his report a sub-committee was appointed to liaise with the Chief Employment Officer of the Labour Department and to make recommendations;

(*d*) Dr. R. J. Grove-White who represented the Medical Department and the Singapore Anti-Tuberculosis Association at the Pan-Pacific Tuberculosis Conference held in Manila in April, reported to the Board on matters arising at that Conference together with the resolutions passed.

414. Medical Superintendent:

Dr. C. E. Smith, L.M.S. (Singapore), T.D.D. (Cardiff).

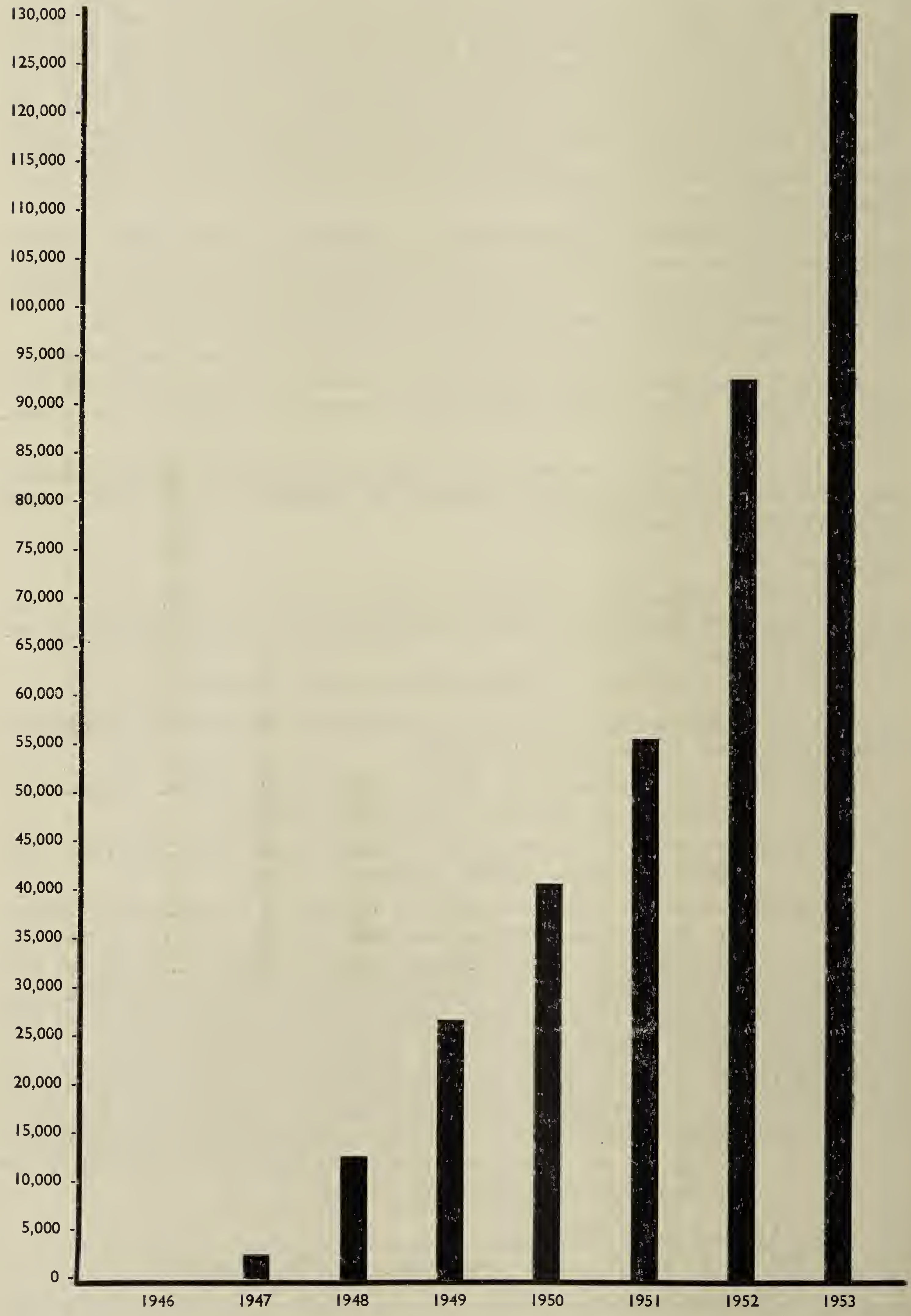
415. Tuberculosis Specialist:

Dr. R. J. Grove-White, M.D. (Dubl.) M.R.C.P. (Ed.).

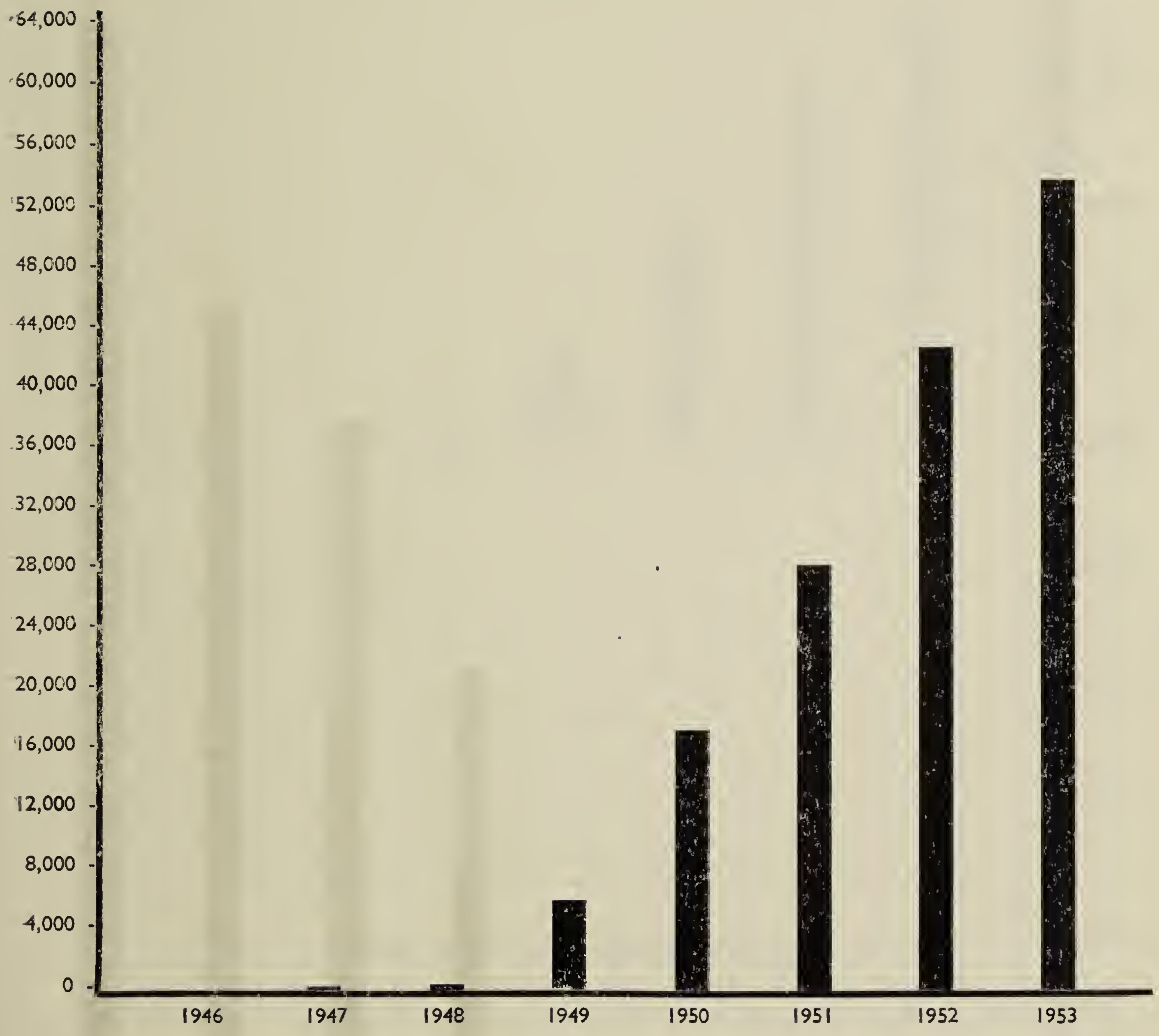
416. Chest Physician:

Dr. (Miss) G. E. L. Cummins, M.B., M.R.C.P.

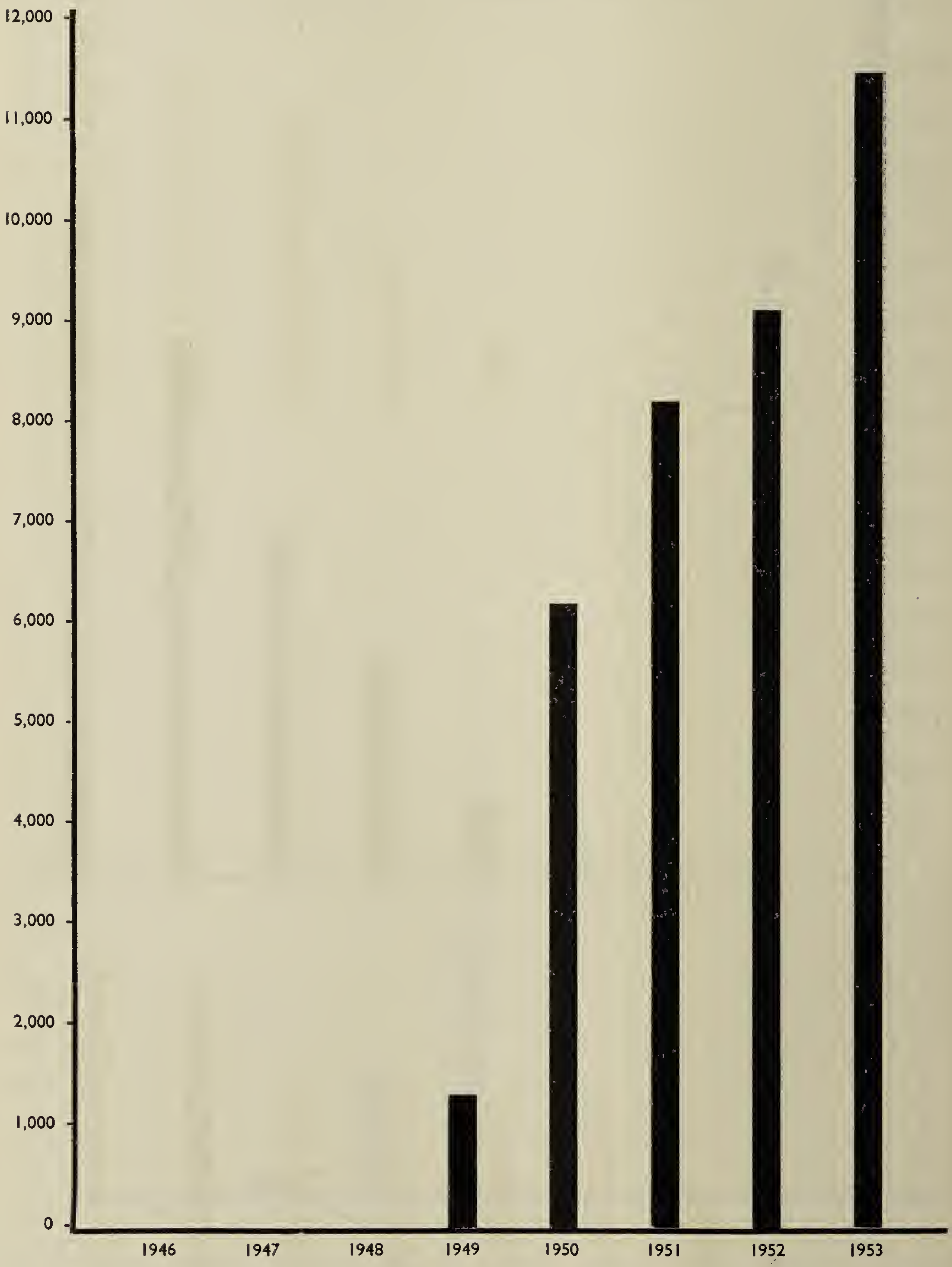
REPEAT VISITS OF CASES OF TUBERCULOSIS



COLLAPSE THERAPY - A.P. AND P.P.



HOME VISITS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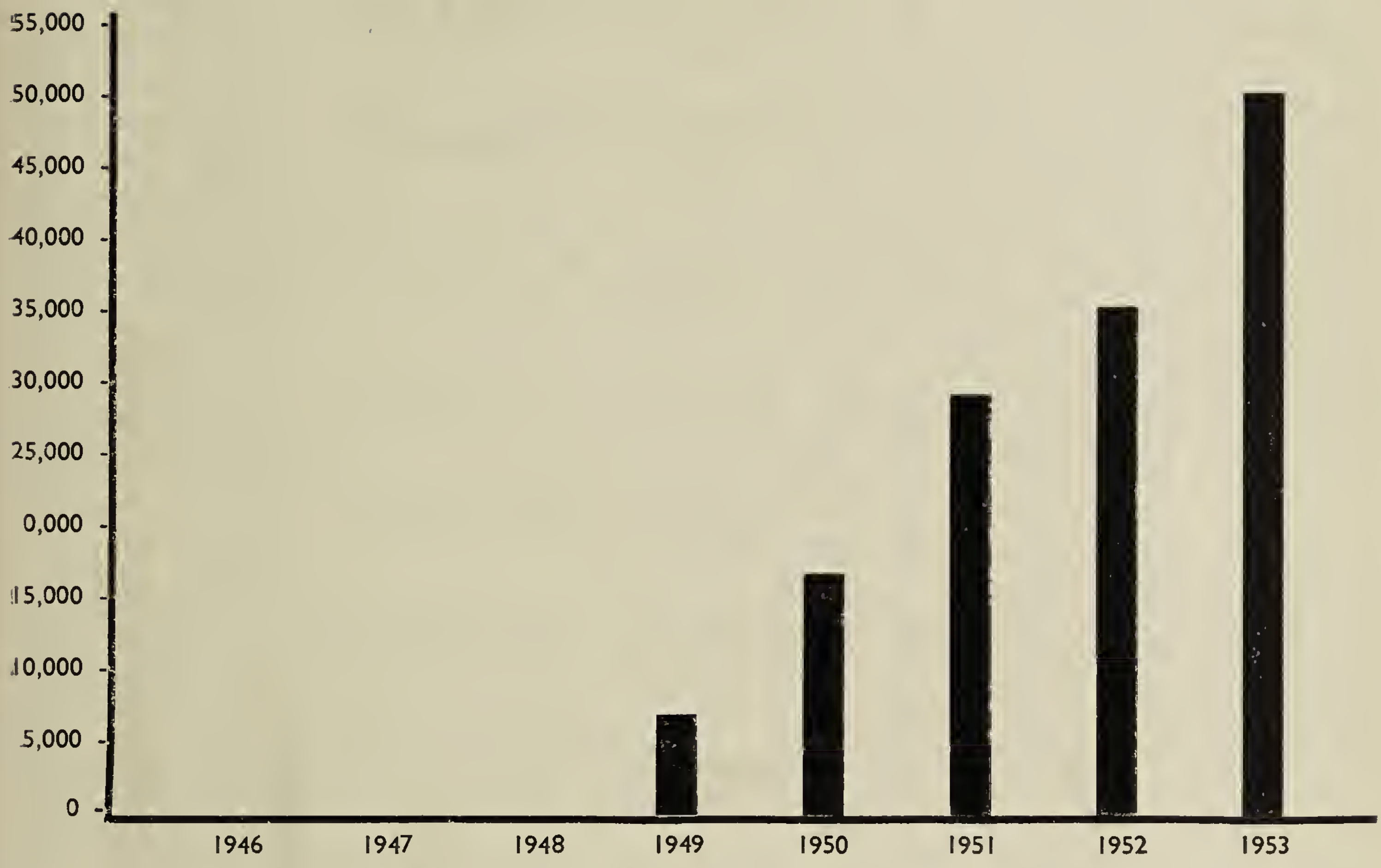
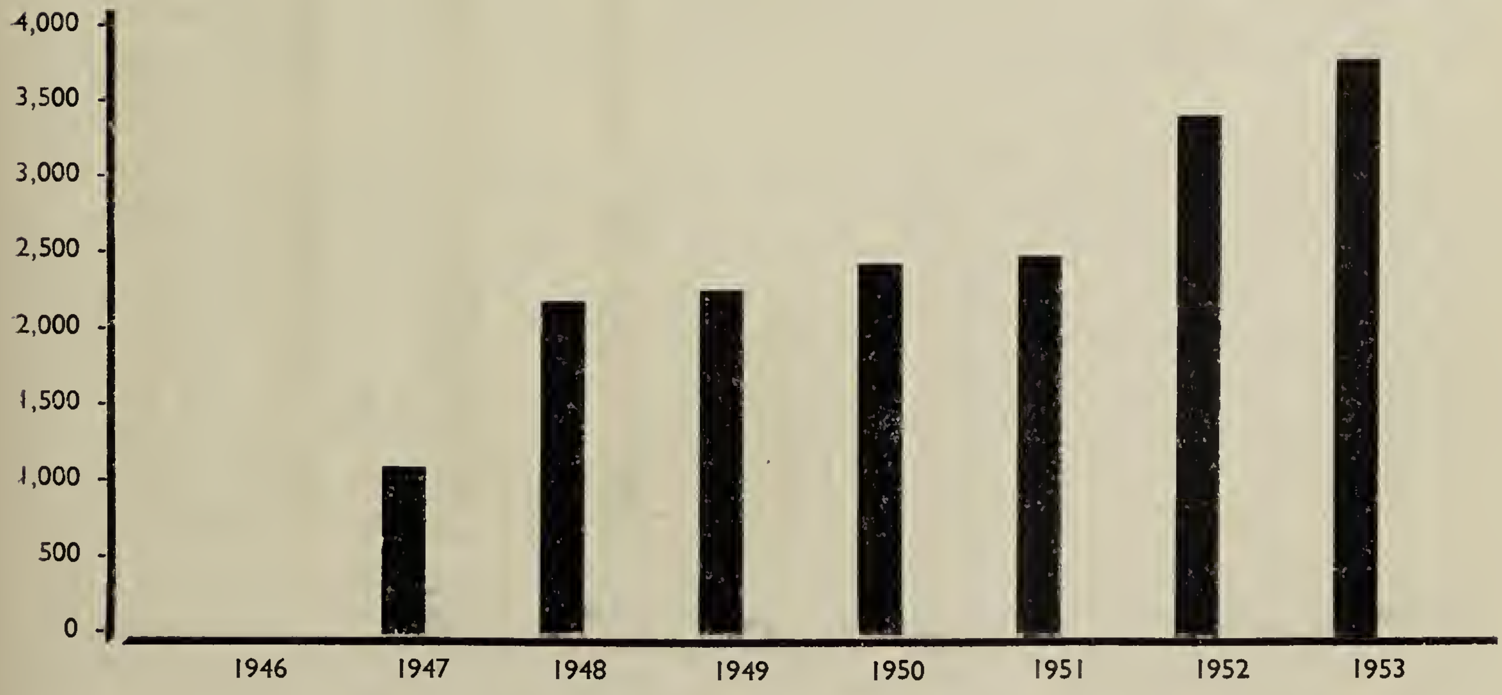


NEW & ASSESSMENT CASES



ROTARY TUBERCULOSIS CLINIC

1953

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1. New Cases of Tuberculosis ..	170	117	147	146	159	159	197	206	236	193	164	183	2,077
2. Repeat Visits of Cases of Tuberculosis	9,874	9,020	9,735	9,543	9,927	9,850	11,165	10,628	12,588	12,296	12,096	13,446	130,168
3. Specialist Consultations													
(*a*) New Cases	142	106	112	101	131	121	161	141	132	144	143	170	1,604
4. (*b*) Old Cases	1,260	1,122	1,249	1,197	1,411	1,779	2,207	1,945	2,002	2,165	1,844	1,892	20,073
5. X'ray Examinations	3,701	2,768	3,120	2,944	3,302	3,079	3,810	3,039	3,606	3,936	3,588	3,498	40,391
6. Fluroscopic Screenings ..	657	580	693	704	692	720	761	844	831	851	860	1,001	9,194
7. Laboratory Examinations ..	7,269	6,258	6,992	6,484	7,239	6,987	7,455	6,834	8,275	9,165	7,489	7,837	88,284
8. A. P. Inductions	14	2	..	1	..	..	2	1	1	3	..	1	25
9. A. P. Refills	97	94	95	98	69	79	110	94	94	82	89	82	1,083
10. P. P. Inductions	37	44	73	56	68	48	52	58	100	74	122	122	854
11. P. P. Refills	3,573	3,144	3,804	3,870	3,883	4,038	4,422	4,480	4,548	4,753	4,741	5,573	50,829
12. Aspirations	22	9	16	21	27	28	38	23	37	33	41	25	320
13. Home Visits to Patients ..	545	535	482	431	622	465	617	482	630	606	483	542	6,440
14. Home Visits to Contacts ..	447	360	463	251	467	349	388	388	530	499	347	425	4,914
15. Tuberculin Tests	68	57	128	53	121	73	94	112	139	121	70	62	1,098
16. Contacts' Attendances at Clinic ..	338	354	456	362	425	447	541	506	540	519	412	468	5,368
Total ..	28,214	24,570	27,565	26,262	28,543	28,222	32,020	29,781	34,289	35,440	32,489	35,327	362,722

SINGAPORE ANTI-TUBERCULOSIS ASSOCIATION

417. Government is not the only entrant in the field against tuberculosis. A feature of post-war Singapore in this respect is the public-spirited activity of her many citizens resulting in the provision of buildings and clinics for this purpose. Rotary built us a most excellent and invaluable out-patient division in 1949 around which the present organization revolves at Tan Tock Seng Hospital. More comprehensive in its aims, was the formation of a voluntary association, the Singapore Anti-Tuberculosis Association in 1948. From very small beginnings, and relying largely on subscriptions, this body has embarked on the wider principle of treating cases in addition to a very considerable diagnostic service for the public. The success which has attended this venture found its appropriate reward in the opening of a very modern clinic by the Duchess of Kent on the 3rd of October, 1952, since when it has been named the 'Royal Singapore Tuberculosis Clinic'.

418. While it would be unrealistic to expect a voluntary body to provide a fully comprehensive service with hospitalization, the contribution made by the Singapore Anti-Tuberculosis Association is none the less extensive and significant. With a staff of seven chest physicians under a Medical Director, Dr. G. H. Garlick, this institution dealt with some 3,111 new and 17,644 old cases and carried out 57,773 X-rays for diagnostic purposes during the year. Total attendances reached the figure of 152,790.

Domiciliary Visiting

419. During the year it has been possible to increase the number of patients receiving home treatment from 20 to 50, and 4,319 treatment visits have been made by the Health Sister and Medical Officer. In addition to these, 2,649 visits have been made by the Almoner and her staff for the investigation of new contacts, assessment of patients' means, follow-up of defaulters, etc.

Milk Bar

420. 27,467 free meals, consisting of a milk drink containing fresh eggs, and a buttered vitamin bun, were served in the Milk Bar during the last twelve months. This represents an increase of 7,000 over the previous year.

421. A rehabilitation division was set up in May 1953 in order to meet the problem of helping patients back into employment after their condition had been relieved. As a first step patients were interviewed and information collected as to the type of work they could do. Sources of employment were then sought among Trades Unions, business firms, the employment depôts of the War Department, etc. In spite of the general recession of trade, employment of one kind or another had by 31st December been found for 140 patients.

422. In July a tailoring centre was started in the old Treatment Centre premises. Arrangements were made for the purchase of sewing machines at a generous discount, and cloth was obtained from a wholesaler at competitive prices. At the end of December, eight tailors were working full-time and three pupils were being trained. Orders during that month had amounted to over $1,700. Thanks to generous discounts, low prices for cloth, and small overheads, it is possible to charge competitive prices for work done in the Centre and at the same time to provide adequate wages for the tailors and pupils on a piece-work basis.

423. Plans were also started for the setting up of a Printing Centre to run side by side with Tailoring in the old Treatment Centre Building. The Government Printing Office has been extremely helpful, has offered the loan of a

Printing Press, and has agreed to train suitable patients to use it. In addition two small hand presses were obtained from the United Kingdom for training purposes.

Insurance Scheme

424. In July 1953 an insurance scheme was introduced whereby, for $1 a month paid yearly or half-yearly, anyone can insure against tuberculosis. Serious tuberculosis can be avoided by early diagnosis and treatment. The aim is always to persuade people to come for regular X-ray examination (even two or three times a year), but many who would like to come have been deterred by the fear that they might not be able to pay for treatment if the disease were diagnosed. By guaranteeing free examination after the initial X-ray and free treatment to those who insure themselves and their families an attempt has been made to remove this fear.

425. That the scheme is welcome has been shown by the fact that by the end of the year 3,000 persons had become members either privately or through their employers, and a considerable number of the firms who formerly sent their staffs for mass X-ray once a year have already come into the scheme. The staffs of these firms are now X-rayed regularly twice a year, and the firms are relieved of the responsibility of contributing towards the cost of treatment of those who may subsequently become infected. Practices vary in different firms, but it is generally found that employers are willing to pay for the initial X-rays themselves and to share the cost of the premia with the individual employees.

Education

426. An excellent film about tuberculosis, in various languages, is shown to all patients before they start on their treatment, and films of medical and general interest have also been shown to the staff during their lunch interval.

427. Lectures have been given in schools, and material lent to school teachers for lessons on tuberculosis. Pamphlets explaining the disease in simple language and telling sufferers what they should do to avoid spreading the infection to others, were printed in English and Chinese for distribution to new patients.

THE B.C.G. CAMPAIGN

428. The programme of testing for tuberculin sensitivity, and inoculation with B.C.G. of the new born and negative reactors, initiated by the U.N.I.C.E.F./W.H.O. team for a period of four months from June 1951, was continued by the Government of the Colony. Up to the end of 1953 90,606 persons were tested and 35,463 were found to be negative reactors. A total of 35,894 B.C.G. inoculations, which includes 1,607 in the new born, were given.

429. In August 1952, Professor Heaf, the tuberculosis expert and consultant to the Colonial Office, visited Singapore and advised that in Mantoux testing a more accurate measurement could be obtained by using 10 T.U. his main reason being that what matters is a concentration of the substance rather than its volume. His recommendation was adopted and from 26th August, 1952, 10 T.U. has been used in all Mantoux testing. Further he recommended that the inoculation of the new born with B.C.G. should not be practised at this stage and that testing and immunizing programmes should commence from the twenty year age group downwards and not from infancy upwards. This procedure was adopted accordingly.

430. It has been possible to analyse all persons observed during these years but since the information recorded on the cards is not sufficient it has not been possible to break down these figures into social classes, occupational groups, etc. The findings available for this period are shown on the following pages.

431. It would appear that the incidence of tuberculosis in Singapore is higher than that recorded in some Western countries. But what is not certain is whether it is sufficiently well understood that the chief factor in the maintenance of this high prevalence rate is not so much a lack of medical facilities for isolation and treatment as the abundance of such factors as intense overcrowding in insanitary buildings, the comparative lack of sanitary discipline in the people, the lower standard of living judged by conditions in the West, and the general failure to realize that tuberculosis is a highly infectious disease.

432. A point that is apt to be forgotten is that when we attempt international statistical comparisons we select as standards highly developed and progressive countries like the United Kingdom, and neglect comparisons with our neighbours in Asia. In the East our rates should compare more than favourably with the best in Asia, but unfortunately accurate data are not available. While tuberculosis can be conquered, its control by purely medical measures cannot show outstanding success until there is considerable improvement in our general housing conditions and in the sanitary consciousness of our citizens.

TUBERCULIN—POSITIVE RATES

Singapore 1951 and 1952

Age	MALE						FEMALE					
	MORO			MX. 5 T.U.			MORO			MX. 5 T.U.		
	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent
0	1,328	37	2.8	313	9	2.8	1,344	42	3.1	276	13	4.7
1	386	17	4.4	160	5	3.1	395	26	6.6	113	9	7.9
2	468	43	9.0	190	18	9.4	421	50	11.8	142	14	9.8
3	505	75	14.9	219	25	10.5	504	76	15.1	169	28	16.5
4	572	132	23.1	236	47	18.3	533	101	18.9	156	25	16.0
5	687	210	30.6	265	70	26.4	682	179	27.5	160	63	39.3
6	1,215	517	42.5	289	118	48.3	1,083	451	41.6	208	95	45.6
7	2,275	1,030	45.3	540	255	47.2	1,708	806	47.2	288	141	48.9
8	2,427	467	48.1	500	274	54.8	1,954	1,003	51.3	313	158	54.7
9	2,393	1,255	52.9	431	259	60.9	2,026	1,078	53.2	247	138	55.8
10	2,067	1,567	75.5	523	334	63.8	2,290	1,343	58.7	310	191	61.6
11	2,812	1,633	58.1	774	533	68.8	2,090	1,263	60.4	618	445	72.0
12	225	116	51.5	3,160	2,214	70.0	184	109	59.2	2,315	1,542	66.6
13	62	31	50.0	3,656	2,406	65.8	40	13	32.5	1,299	1,314	68.1
14	41	15	36.5	2,244	1,683	75.0	16	5	31.2	1,596	1,158	72.5
15	28	7	8.9.	1,802	1,361	75.5	..	..	..	1,274	928	72.8
16	9	2	22.2	1,296	1,017	78.4	..	..	..	883	644	72.9
17	2	0	..	860	655	76.1	..	..	..	647	503	77.7
18	..	..	..	555	440	79.2	..	..	..	511	411	84.3
19	..	..	..	358	300	86.2	..	..	..	300	229	76.3
20–24	..	..	..	462	397	85.9	..	..	..	1,605	1,326	82.6
25–29	..	..	..	224	206	91.9	..	..	..	1,294	1,153	89.0
30–34	..	..	..	191	182	95.9	..	..	..	997	918	92.0
35–39	..	..	..	165	160	96.9	..	..	..	637	593	93.0
40–44	..	..	..	139	138	99.9	..	..	..	377	357	94.6
45–49	..	..	..	94	91	96.8	..	..	..	154	146	94.8
50–54	..	..	..	64	63	98.4	..	..	..	113	90	79.6
55–59	..	..	..	22	21	95.4	..	..	..	52	44	84.6
60–64	..	..	..	7	6	85.7	..	..	..	34	31	91.1
65	..	..	..	1	1	100.0	..	..	..	12	11	91.6
Unknown	58	26	46.6	109	100	91.7	53	26	49.0	50	36	72.0

TUBERCULIN—POSITIVE RATES

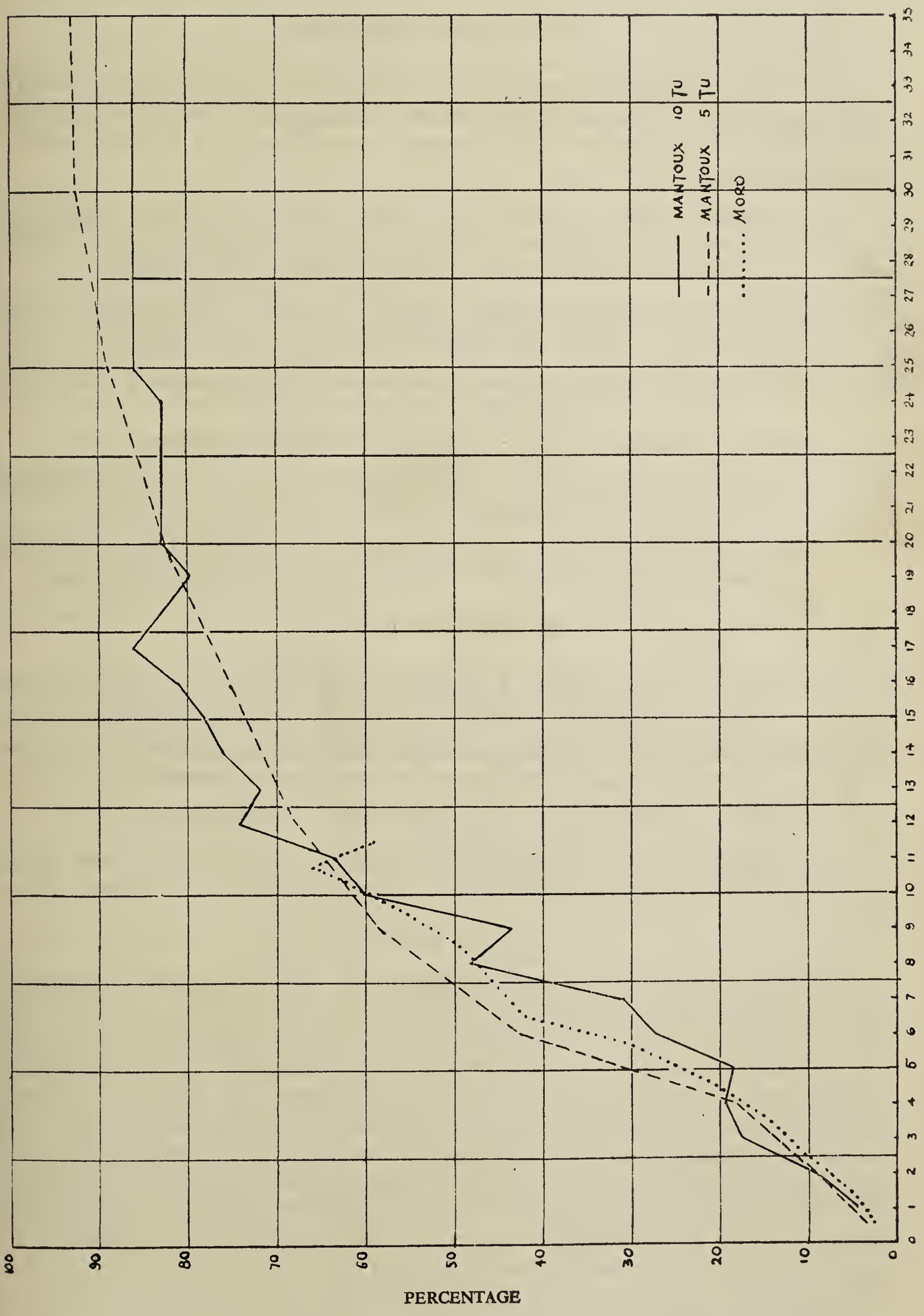
Singapore 1953

Age	MALE						FEMALE					
	MORO			MX. 10 T.U.			MORO			MX. 10 T.U.		
	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent	Compl. Test	+ ve	Per cent
0	1	1	100	27	1	3.7	2	2	100	38	2	5.2
1	..	..	..	36	2	5.5	1	1	100	47	6	12.7
2	..	..	..	40	6	15	1	1	100	45	9	20
3	1	1	100	43	7	16.2	..	..	..	43	10	23.2
4	1	1	100	36	5	13.8	..	..	..	26	6	23
5	2	2	100	23	6	26.08	1	1	100	35	10	28.5
6	1	1	100	20	5	25	1	1	100	27	10	37
7	2	2	100	13	6	46.1	..	..	..	18	9	50
8	2	2	100	11	4	36.3	1	1	100	8	4	50
9	1	1	100	113	65	57.5	2	2	100	51	32	62.7
10	..	..	..	995	586	65.4	..	..	..	367	229	62.3
11	..	..	..	1,016	709	69.7	..	..	..	401	240	79.7
12	..	..	..	1,014	750	74.03	..	..	..	411	282	68.6
13	..	..	..	1,012	748	73.9	..	..	..	328	222	67.6
14	..	..	..	750	578	77.06	..	..	..	241	185	76.7
15	..	..	..	520	413	79.4	..	..	..	147	111	75.5
16	..	..	..	356	296	83.1	..	..	..	105	79	75.2
17	..	..	..	232	188	81.03	..	..	..	110	90	81.8
18	..	..	..	155	132	85.1	..	..	..	63	52	82.5
19	..	..	..	76	62	81.5	..	..	..	34	27	79.4
20–24	..	..	..	125	105	84	..	..	..	59	48	81.3
25–29	..	..	..	37	32	86.4	..	..	..	14	12	85.7
30–34	..	..	..	15	15	100	..	..	..	7	6	85.7
35–39	..	..	..	10	7	70	..	..	..	7	6	85.7
40–44	..	..	..	5	5	100	..	..	..	2	2	100
45–49	..	..	..	2	2	100	..	..	..	1	..	..
50–54 ..	..	..	..	2	2	100	..	..	..	..	..	..
55–59	..	..	..	1	1	100	..	..	..	1	1	100
60–64	..	..	..	..	..	..	..	..	..	..	..	..
65	..	..	..	1	1	100	..	..	..	..	..	..
Unknown ..	..	..	..	11	8	72.7	..	..	..	2	1	50.0

Remarks:—*Total completing Test	90,606	Blank Cards	242
Total Negative Reactors	35,463	Questionable Cards ..	41
Total B.C.G. Vaccinated	35,894		

*These figures do not include 1.294 new borns who were vaccinated without having been first given a tuberculin test.

PERCENTAGE OF POSITIVE REACTORS TO TUBERCULIN TESTS BY AGE IN SINGAPORE
1951 TO 1953



CHAPTER NINETEEN

VENEREAL DISEASES

433. The ultimate objective of this division in the elimination of Venereal Diseases as a Public Health problem in Singapore. In order to fulfil this responsibility it maintains the following institutions and carries out the following functions:—

a hospital with sixty-eight beds with male and female out-patient clinics and a separate seamen's clinic in the dock area for examination and treatment of venereally infected individuals;

a mobile unit called the Social Hygiene Travelling Dispensary for diagnosis and treatment of venereal patients in rural areas;

a serological laboratory for qualitative and quantitative kahn and Venereal Diseases research laboratory tests;

an epidemiological unit for contact and follow-up purposes;

statistical data and keeps a central registry file of all reported infected persons and their families;

liaison with various hospitals, ante-natal clinics, Armed Services police and specialists, Social Welfare, Labour and Police Departments;

education of public and training of medical and socio-medical personnel;

a dermatological clinic for diagnosis and treatment of skin ailments and for exclusion of venereal infection in such patients;

experimentation, evaluation and research activities on effects of various drugs and drug schedules in the treatment of patients;

antibiotic prophylaxis of prostitutes on a voluntary basis.

434. During the year consolidation of gains made previously and steady progress in various activities mentioned above have been maintained.

EDUCATION

435. A significant advance has been made during the year in the training of medical and socio-medical workers who constantly come in touch with the public in the course of their duties. In addition to the training of the final year students of the Faculty of Medicine of the University of Malaya, special separate demonstration lectures have been arranged for hospital assistants, nurses, midwives and almoners. A post-graduate training course has been instituted for medical officers studying for the Diploma of Public Health in the University of Malaya. The World Health Organization in the South-East Asia Region sent 3 socio-medical workers—two from Pakistan and one from Burma—apart from visiting teams from such countries as Indonesia, for training and study of the epidemiological control of syphilis as practised in Singapore.

436. The education of the civilian population is still carried by 'word of mouth' by field workers of the epidemiological unit. As the men are usually

away at work during the day, a male field worker has been employed both for contact and educational purposes to pay the necessary visits in the evenings. The Asian personnel of the Army has been regularly lectured by a specially trained Malay hospital assistant of this division during the last four years.

437. The net result of these activities has been an unprecedented increase both in number of new cases as well as in total attendances by patients in 1953 due to increased consciousness of the public about these diseases, although the actual incidence of venereal diseases even with such case-finding methods is still about the same as in 1952.

438. The staff of the epidemiological control unit consists of a Senior Supervisor and nine male and female assistants, all of whom have a workable knowledge of at least five Chinese dialects in addition to Malay and English. They were responsible for 9,126 home visits during the year of which 2,596 were purely for propaganda purposes. The successful contact visit index is still 60 per cent which compares very favourably with that of any found in a Western country. The number of family units on the register has increased from 1,053 in 1952 to 1,726. These are local families where one or more members have been found to be infected with V.D.

439. Under the Women and Girls Protection Ordinance the Social Welfare Department referred seventy-eight girls below the age of eighteen years for examination of whom only fifteen were found infected. These girls after treatment were transferred for rehabilitation to a Social Welfare home and were kept under surveillance and periodical check-ups.

ANTIBIOTIC PROPHYLAXIS

440. This service which consists of administration of 600,000 units of PAM weekly to any promiscuous woman who desires to have such a treatment has been making steady progress. The number has increased from 117 in 1950 to 616 in 1953. About 215 have stopped attending clinics for such treatment. They have either left Singapore, got married or were employed in other gainful occupation and are no longer prostituting. During 1953, 200 new cases were registered of whom 29 were referred by military police, the rest coming of their own accord or through the civilian police. 10,466 prophylactic treatments were given during the year, or about 872 per month. Not all of these women were found infected at the time of examination but as they average about 4 exposures a day, they were thought to be a potential source of infection. The breakdown of the new 200 cases revealed that 90 had syphilis, 14 gonorrhœa, 2 lymphogranuloma and 7 mixed infection. The rest were free from venereal infection at the time of examination. These women are also instructed in personal cleanliness and smears and blood tests are taken at requisite intervals. The experience gained so far in this connection tends to indicate that such treatment is useful in the control of syphilis, of gonorrhœa and soft chancre but of little avail against non-gonococcal urethritis. It is surmised that this procedure has played an important role in the tremendous decline of reported cases of primary and secondary syphilis from 1949–1953 (vide infra).

TRAVELLING DISPENSARY

441. How a rural population with a low literacy rate can be educated to the importance of a blood test has been well brought out by the increasing attendances at the Social Hygiene Clinics held at this mobile unit. This

facility was provided towards the end of 1950, and in 1952 the number of new cases examined was 2,753 of which 150 were V.D. cases. During 1953 the total number examined had risen to 6,238 of which 384 were syphilitics. The most notable feature has been the record number of ante-natal women attending such clinics, the number increasing from 1,784 in 1952 to 4,708 in 1953. During the last 3 years 7,855 pregnant women have been examined in the rural areas of Singapore, 351 being shown to be suffering from syphilis i.e. about 4.5 per cent. The following tables summarize this work during the year:—

Clinic	NEW CASES		No. of ante-natals	V.D. cases	Investigation cases	Total
	Male	Female				
Central Rural						
Yio Chu Kang	347	1,084	986	63	1,368	1,431
Upper Serangoon ..						
Seletar						
Paya Lebar						
Rural West						
Bukit Timah	390	2,978	2,566	225	3,143	3,368
Pasir Panjang						
Bukit Panjang						
Holland Road						
Jurong						
Rural East						
Kampong Batak	43	1,306	1,156	87	1,262	1,349
Changi						
Ulu Bedok						
Siglap						
Homes and Schools						
Bukit Timah Boys' Home ..	30	..	..	4	26	30
Trafalgar Home	60	..	..	5	55	60
Total ..	870	5,368	4,708	384	5,854	6,238

442. The number of old cases discharged from the Social Hygiene Hospital and treated by this service in various centres:—

Clinic	Syphilis	G.C.	Total
Central			
Yio Chu Kang Upper Serangoon	226	21	247
Rural West			
Bukit Timah Pasir Panjang Bukit Panjang Holland Road Jurong	240	21	261
Rural East			
Kampong Batak Changi Ulu Bedok Siglap	216	28	244
Total	682	70	752

443. The number of ante-natal cases examined, the number found positive on routine blood test, and whether the woman was a primipara or multipara at the time of first examination:—

Nationality	No. of ante-natals	Primipara	Primipara positive	Multipara	Multipara positive
Chinese	2,983	781	19	2,202	85
Malaysian	1,356	354	19	1,002	66
Indian	347	97	2	250	19
Others	22	5	..	17	..
Total	4,708	1,237	40	3,471	170

444. It will be noticed that the number of old cases from Middle Road Hospital attending at different centres has somewhat diminished (752 as compared to 991 in 1952). Due to the large increase in the number of patients it was found more expedient to treat them in the locality from where they came, for which purpose the Travelling Dispensary in addition to Morning and Afternoon clinics inaugurated two evening clinics per week (6–8 p.m.) not only to save time and money of the patients concerned, but to avoid hospitalization in Middle Road Hospital.

DERMATOLOGICAL CLINIC

445. This facility apart from providing a regular, daily free service to the community serves two other very useful functions. It exploits the psychological background of the masses in the tropics who believe that most of skin ailments are due to bad blood. It helps in overcoming the prejudice of certain classes to attending for pure venereal diseases and thus uncovers many cases of unsuspected latent syphilis in skin patients.

446. This clinic was responsible for treating 3,211 new patients—nearly 1,000 more than in 1952. Several skin biopsies were sent elsewhere for expert histological examination to confirm or clinch the clinical diagnosis.

ATTENDANCES

447. The story of a clinic is the story of the disease it treats, controls or prevents. Even in advanced countries like the United States of America and the United Kingdom, Venereal Disease clinics have camouflaged designations. At Johns Hopkins in Baltimore it is called 'Medicine I' and at St. Mary's Hospital in London it is known as a Special Treatment Centre—S.T.C. In Singapore a spade has been called a spade and the patients who either apply for relief from a disease or for a clean bill of health seem to have little prejudice against the nomenclature, as is evident from the record number of attendances in 1953:—

Year	*In-patients*	*Out-patients*	*Total Attendances*
1949	2,221	14,478 (3,721 females)	96,258
1950	2,555	15,249 (3,884 females)	105,592
1951	2,633	15,958 (4,794 females)	124,830
1952	2,434	16,002 (4,873 females)	125,150
1953	2,807	21,617 (8,618 females)	146,267

448. Apart from public holidays there are 297 working days during the year and on each of these 493 people attended. To meet such an increasing pressure of work two extra afternoon clinics per week were held by the male department in Middle Road Hospital and as stated above the Travelling Dispensary added another two evening clinics to its schedule.

INCIDENCE OF VENEREAL DISEASES

449. The following table summarizes the number of V.D. infections reported to the department during the last five years:—

Year	*Syphilitic infections*	*Other V.D. infections*	*Total*
1949	4,575	5,885	10,460
1950	3,137	5,656	8,793
1951	2,512	5,275	7,787
1952	2,097	4,243	6,340
1953	1,925	4,384	6,309

450. Reported cases of primary and secondary syphilis have been diminishing at a rapid pace but not those of gonorrhœa as is shown in the following table:—

Year	*Primary Syphilis*	*Secondary Syphilis*	*Gonorrhœa*	*Gonorrhœa Complications*	*Total*
1951 ..	485	460	2,816	139	3,900
1952 ..	322	223	2,690	115	3,350
1953 ..	194	68	2,843	62	3,167

451. It would appear that the present methods of treatment and control have reduced infectious syphilis (primary and secondary) by 63 per cent in the course of the last two years. A disquieting feature about early syphilis locally is the slightly increasing number of early latent cases (infection within the last four years) which may be due to the increasing use of penicillin for various diseases; some such cases carry syphilis while passing on to the latent stage from the start and thus never seeking medical treatment. A variable

proportion is brought to notice only by painstaking case-discovering methods. The following table shows the number of latent syphilis cases treated during 1953:—

Nationality	MALE			FEMALE		
	EARLY	LATE	Total Cases	EARLY	LATE	Total Cases
	Latent Syph.	Latent Syph.		Latent Syph.	Latent Syph.	
Chinese	139	159	298	158	246	404
Indian	73	117	190	31	39	70
Malaysian	37	58	95	67	43	110
Eurasian	1	2	3	1	2	3
European	6	2	8	..	..	..
Others	1	2	3	2	6	8
Total ..	257	340	597	259	336	595

452. The ratio of early latent to late latent syphilis during the last three years has been rising:—

Year		*E. L. cases*	*L. L. cases*	*Ratio E. L.*	*L. L.*
				%	%
1951	..	319	699	31	69
1952	..	365	676	36	64
1953	..	402	676	43	57

TERTIARY SYPHILIS

453. A substantial reduction in this category has been visible during the year—from 410 cases in 1952 to 337 in 1953. There have been less tertiary bone and neurosyphilis cases.

454. The following table gives the breakdown by type of disease nationality and sex in 1953:—

Nationality	Gummata and Skin	Bones and Joints	Cardio-vascular	G.P.I.	Tabes	Other Neuro-Syphilis	Total
Males							
Chinese ..	44	64	24	19	24	11	186
Indian	17	30	4	3	2	7	63
Malaysian ..	5	7	1	2	2	4	21
Others	1	1	1	..	1	..	4
Females							
Chinese ..	6	5	10	..	5	15	41
Indian	3	3	2	..	1	3	12
Malaysian ..	2	2	1	..	1	4	10
Total ..	78	112	43	24	36	44	337

455. The ratio of various lesions for the last four years has been:—

Lesion	*1950*	*1951*	*1952*	*1953*	
	Per cent	*Per cent*	*Per cent*	*Per cent*	
Neurosyphilis	35.6	37.3	37.5	31.0	
Cardio-vascular	10.8	7.2	9.8	12.3	
Cutaneous	29.7	19.7	16.1	23.3	Benign
Bones and Joints	23.9	35.8	36.6	33.4	

456. Benign lesions i.e. those of skin, bones and joints constituted 56.7 per cent on neuro and cardio-vascular 43.7 per cent. The ratio seems to be more or less the same for the last four years.

CONGENITAL SYPHILIS

457. As mentioned above the Travelling Dispensary has been doing an uphill but a splendid job in examining pregnant women in ante-natal clinics in the rural areas, and detecting and treating those found with positive serology. The result has been a continuous fall in cases of infantile syphilis as reported to the division since the inauguration of this service in late 1950.

458. Number of congenital cases in babies (infantile syphilis in children below the age of one year):—

1950	117
1951	70
1952	59
1953	42

459. A decline of 64 per cent since 1950 is remarkable. If a similar routine could be followed in all ante-natal clinics infantile syphilis could be reduced to a vanishing point in Singapore.

GONORRHŒA

460. This, the most ancient of all the known venereal infections, and the easiest to cure, shows little tendency to reduction.

Year	*Gonorrhœa*	*Gonorrhœa Ophthalmia*	*Gonorrhœa Complications*	*Total*
1950	3,209	86	192	3,478
1951	2,816	49	90	2,955
1952	2,690	60	55	2,805
1953	2,843	82	62	2,987

461. Public Health control of gonorrhœa presents several practical difficulties. In the first place 85 per cent of women suffering from the disease, unlike the male, show no signs or symptoms such as dysuria and burning sensation or discharge. A woman seldom seeks treatment unless a copious discharge results and so may remain a constant source of infection to her sexual partner. Out of 2,843 cases of gonorrhœa treated during the year only 252 were women. Secondly, since the introduction of antibiotics, the treatment has passed almost entirely into the hands of general practitioners few of whom have the opportunities of following up the case or of doing tests for cure. As about 5 per cent of cases relapse after treatment these may spread infection till treated again, and in women such relapses might never be detected. Possibly our clinic admission rise may be due to some economic recession affecting the class of person concerned. A large majority of men who have sought treatment have had several attacks of the disease previously and have been treated by

general practitioners. This is evident from the fact that while in 1952 only 20 per cent of clinic patients (male) had a history of multiple attacks, in 1953 this proportion had risen to 80 per cent.

462. The following table shows the percentage of association with non-specific urethritis and relapses in male patients:—

	No. of Male Gon. cases	*Gon. and Non-Sp. urethritis*	*Per cent*	*Relapse*	*Per cent*
1951 ..	2,533	183	7	142	5.6
1952 ..	2,505	220	8.8	158	6.3
1953 ..	2,370	221	8	165	6.3

NON-SPECIFIC URETHRITIS

463. In the pre-antibiotic era about 30 per cent of cases of urethral discharge showed no gonococci in the smear, but as treatment used to be with irrigations, etc., it did not make much difference towards the ultimate result. Since penicillin delivered a knock-out blow to the gonococcus, cases of urethral discharge with no gonococci have come into great prominence. Whatever the causative agent may be it is not susceptible to penicillin, and what is more, in about 75 per cent of such cases the prostate seems to get mildly infected. Some of these cases are refractory to any kind of antibiotic. As the symptoms are very mild such cases go on spreading disease to their sexual partners. Treatment of such cases is still the domain of the specialist and naturally in a Social Hygiene clinic the proportion of such cases increases every year:—

Year	*No. of N.S.U.*
1950	30
1951	192
1952	217
1953	341

464. If these figures are added to cases of gonorrhœa associated with non-specific urethritis the total for 1951 is 375: 1952, 437 and 1953, 562. Most of these cases naturally are sub-acute or chronic in nature. The acute cases amenable to treatment with antibiotics or sulfa drugs are mostly cured by the general practitioner. In spite of intense research in the United Kingdom and the United States of America so far no one-shot therapy has been found. Organizations like the armed forces which deal with acute cases of this nature find the ratio of about 60:40 (60 N.S.U.:40 GC)—an indirect proof that gonorrhœa as such is on the decline in the civilian population.

LYMPHOGRANULOMA (Tropical Bubo)

465. Since the introduction of sulfa drugs and the stress on people reporting early for treatment of this disease its incidence has become very mild but still about 50 per cent have to be admitted to the hospital for a course of T.A.B. injections. Few cases with discharging sinuses are met with. There is some evidence of its decline in incidence in Singapore as is revealed by the figures for the last three years:—

Year	*No. of cases*
1951	223
1952	194
1953	184

SOFT SORE

466. There has been a steep fall in the incidence of this affection: —

Year	*No. of cases*
1949	1,796
1950	1,494
1951	1,600
1952	943
1953	961

MIXED INFECTION

467. These infections seem to be definitely on the decline:—

Year	*No. of cases*
1949	368
1950	472
1951	487
1952	301
1953	252

INVESTIGATION CASES

468. The increasing number of patients in this category is another result of education of the masses by the home visits of the male and female supervisors of the Epidemiological Unit; examination for other closely related genito-urinary infections and treatment of skin cases. Ratio of such cases to V.D. has increased from 60 per cent in 1952 to 75 per cent in 1953. This is now approximately the same as in advanced countries like England and Wales or United States of America and is an index of the V.D. consciousness of the public. The following table is self-explanatory:—

	1951	1952	1953
Apprehensive group including ante-natal and contact cases	4,711	5,301	9,466
Dermatological complaints	1,652	2,266	3,211
Arthritis and Arthralgia	451	445	492
Non-gonococcal urethritis, cervicitis trichomonas infestation, dysuria, haematuria, etc.	604	846	962
Other genital infections, balanitis, warts, paraphimosis, traumatic, ulcers, hydroceles, non-specific epididymitis, and sexual complaints	290	286	299
Yaws	118	138	253
Leprosy	15	31	84
Non-venereal—Iritis, conjunctivitis, etc.	45	27	96
Miscellaneous	285	322	445
Total	8,171	9,662	15,308

SEAMEN

469. Every year, just under a thousand new seamen patients of all nationalities are treated in the clinics:—

Year	*No. of Patients*
1949	862
1950	939
1951	831
1952	864
1953	909

	Primary	Secondary	Tertiary	Period not indicated	Gonorrhœa	Gonorrhœal Complications	Soft sore	Lymphogranuloma	Mixed Infections	V. D. cases	Investigation cases	Total
Chinese	7	1	17	21	75	1	19	7	9	157	138	295
Indian	6	..	..	5	10	2	5	1	1	30	32	62
Malaysian	3	1	3	5	38	..	2	3	1	56	23	79
Eurasian	..	..	..	..	..	..	..	..	..	..	..	..
European	4	..	..	4	92	..	26	3	..	129	328	457
Others	1	..	..	..	7	..	2	1	..	11	5	16
Total	21	2	20	35	222	3	54	15	11	383	526	909

ROUTINE WORK IN THE CLINICS

470. The following table shows the routine work done during the last four years:—

——	1950	1951	1952	1953
Blood specimens for K. T.	22,585	26,785	25,732	27,364
C.S.F. Examination and Kahn and W. R.	638	786	782	679
Dark Ground specimens	7,192	4,797	4,073	4,173
Smears for Gonorrhœa	11,381	13,208	15,154	16,012
Gonorrhœa for culture	257	333	473	491
Total No. of injections	184,921	165,225	169,281	177,866
Aqua penicillin G used	6,140 mu	5,438 mu	4,778 mu	5,455 mu
Procain penicillin in oil with Aluminium monostearate	11,903 mu	22,349 mu	22,455 mu	27,279 mu
Arsenical injections	28,103	26,786	25,923	4,785
Bismuth injections	22,880	21,480	22,384	9,574

TREATMENT

471. Treatment of Venereal Diseases with minor variations is more or less standardized all over the world, but a few local observations may not be out of place in an Annual Report.

Gonorrhœa

472. During the last four years in nearly 12,000 of cases, 1 cc (300,000 units) of PAM (procain penicillin in oil with aluminium monostearate) has always proved efficacious in uncomplicated gonorrhœa. On rare occasions (thrice in females and once in a male) gonococci have been detected both

on smear and culture twenty-four hours after the injection, and a similar case was reported by the pathologist of R.A.F. (private communication) but no confirmation of such an occurrence was available from experts in the United Kingdom and the United States of America. Women patients, as far as possible, are admitted in the hospital when they are given 600,000 units of penicillin and 12 Gs of sulfathiazol in three days. There were two reasons for such a procedure:—

(*a*) too many cases of gon. ophthalmia;

(*b*) to cure if possible a concomitant non specific infection.

Trichomonas infestation if found was also treated at the same time. Penicillin has reduced gonorrhœal complications to a vanishing point. Local complications like periurethral abscess and epididymitis are rare. The most refractory and crippling complication is that of keratodermia blenorrhagica with arthritis. At one period there were four such cases in the hospital—one of over ten months duration. Whether such cases are due to gonorrhœa or non specific infection it is difficult to ascertain.

Non Specific Urethritis

473. This condition has only been diagnosed in the male and in 1953 the ratio has been 1:5 of gonorrhœa. The proportion must be higher in the public at large as the incidence amongst Australian soldiers in 1942 was reported to be as high as 60 per cent by Willis. Terramycin seems to be effective in about 70 per cent of early cases. In chronic and sub acute cases the patient generally has already become a neurotic, and the treating physician has to be resourceful to cure the neurosis as well as the local condition after thorough examination. These cases generally resolve on irrigations, dilatations and prostatic massages, in some the treatment requiring up to five to six weeks. The majority of the cases associated with gonorrhœa generally respond to sulfa and streptomycin, some residual cases with terramycin. Cultures from these generally reveal the normal organisms of the urethra. No facilities are available to culture virus or ‘L’ organisms.

Syphilis

474. Emphasis in treatment of syphilis is on penicillin, follow-up with quantitative tests and the finding and treating of contacts. Quantitative tests have become very important as an indication for further treatment of a treated case. The qualitative test generally becomes negative in six months to two years after treatment of an early case and five years or more in a late case. The quantitative tests are the only means available of detecting a relapse, re-infection or the need for further courses of treatment.

475. Individual cases of course still get bismuth and mapharsen, and fever therapy in addition. Babies receive penicillin only.

Lymphogranuloma

476. Sulfa, T.A.B. injections, anthiomaline and aureomycin are the four drugs used with very satisfactory results.

Soft Sore

477. Sulfa drugs with aspiration or incision of bubo if any.

Granuloma Inguinale

478. No case has been observed for the last five years. The disease is endemic in Southern India and Southern China and it appears that emigration restriction from these areas has eradicated the infection.

MEDICAL, SOCIAL HYGIENE DEPARTMENT

TABLE SHOWING TYPE OF V.D. MALE AND FEMALE PATIENTS TREATED AT THE MIDDLE ROAD HOSPITAL, TANJONG PAGAR CLINIC AND TRAVELLING DISPENSARY DURING THE YEAR 1953

—	IN-PATIENT			OUT-PATIENT				OUT-PATIENT				OUT-PATIENT			
	NEW CASES			NEW CASES				REPETITIONS				TOTAL ATTENDANCES			
	Male	Female	Total	M.R.H. and Tr. D. Male	T.P.C. Male	M.R.H. and Tr. D. Female	Total	M.R.H. and Tr. D. Male	T.P.C. Male	M.R.H. and Tr. D. Female	Total	M.R.H. and Tr. D. Male	T.P.C. Male	M.R.H. and Tr. D. Female	Total
I. SYPHILIS															
(*a*) Primary ..	10	11	21	139	46	9	194	1,713	1,167	393	3,273	1,852	1,213	402	3,467
(*b*) Secondary	9	10	19	47	15	6	68	1,561	974	1,296	3,831	1,608	989	1,302	3,899
(*c*) Tertiary	118	65	183	237	37	63	337	5,288	1,010	2,416	8,714	5,525	1,047	2,479	9,051
(*d*) Congenital	1	97	98	20	2	112	134	279	..	1,299	1,578	299	2	1,411	1,712
(*e*) Period not Indicated ..	43	547	590	478	119	595	1,192	13,873	3,781	13,331	30,985	14,351	3,900	13,926	32,177
II. OTHER VENEREAL DISEASES															
(*a*) Gonorrhœa	21	245	266	1,566	1,025	252	2,843	7,010	5,178	7	12,195	8,576	6,203	259	15,038
(*b*) Gonorrhœal Complications	107	13	120	51	..	11	62	670	..	23	693	721	..	34	755
(*c*) Gonnorrhœa Ophthalmia ..	..	85	85	..	..	82	82	..	..	..	..	..	..	82	82
(*d*) Soft Chancre	61	9	70	617	338	6	961	4,908	2,593	9	7,510	5,525	2,931	15	8,471
(*e*) Lymphogranuloma ..	91	9	100	126	49	9	184	806	271	131	1,208	932	320	140	1,392
(*f*) Mixed Infections ..	12	38	50	154	62	36	252	537	478	1,692	2,707	691	540	1,728	2,959
III. INVESTIGATION CASES ..	383	822	1,205	5,624	2,247	7,437	15,308	19,911	12,393	19,652	51,956	25,535	14,640	27,089	67,264
Total ..	856	1,951	2,807	9,059	3,940	8,618	21,617	56,566	27,845	40,249	124,650	65,615	31,785	48,867	146,267

Note:—M. R. H. = Middle Road Hospital.
Tr. D. = Travelling Dispensary.
T. P. C. = Tanjong Pagar Clinic (Docks).

MEDICAL, SOCIAL HYGIENE DEPARTMENT

TABLE SHOWING TYPE OF V.D. MALE AND FEMALE PATIENTS TREATED AT THE MIDDLE ROAD HOSPITAL, TANJONG PAGAR CLINIC AND TRAVELLING DISPENSARY DURING THE YEAR 1953

Nationality	IN-PATIENT			OUT-PATIENT, NEW CASES			OUT-PATIENT, REPETITIONS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Chinese	499	1,268	1,767	6,738	5,311	12,049	48,395	21,406	69,801
Indian	316	330	646	4,013	1,668	5,681	28,860	8,634	37,494
Malay	35	323	358	1,281	1,465	2,746	4,858	8,716	13,574
Eurasian	1	7	8	94	30	124	480	492	972
European	3	..	3	381	1	382	1,144	..	1,144
Others	2	23	25	492	143	635	664	1,001	1,665
Total ..	856	1,951	2,807	12,999	8,618	21,617	84,401	40,249	124,650

CHAPTER TWENTY

MATERNITY AND GYNÆCOLOGY

KANDANG KERBAU HOSPITAL

479. On 6th October, 1953, the foundation stone for the new wing of this hospital was laid by His Excellency the Governor Sir John Nicoll, K.C.M.G. The wing which covers an area of thirteen acres will be joined to the existing two wings by two covered ways and will include: —

(*a*) a most up-to-date out-patients division with ante-natal, post-natal, gynæcological units and a general Women's and Children's Clinic;

(*b*) a new Ward Block providing 12 beds in a septic unit, 24 beds in labour wards and 80 beds in general lying-in wards, making a total of 116 beds on a most ideal basis. None of the wards have more than 4 beds. In addition there will be two operating suites, an X-ray division and a dispensary unit;

(*c*) a laboratory block providing pathological, bacteriological divisions with additional urine and blood testing units and a library and museum;

(*d*) a nurses hostel providing twelve double bedrooms for midwives and fifty single bedrooms for nurses, together with a lecture room, recreation rooms and a dining room;

(*e*) a students hostel, providing single bedrooms for eight housemen and thirty students, as well as sitting rooms and dining room. There is a separate professorial suite and a lecture theatre seating 100 persons;

(*f*) Sisters Quarters to accommodate three matrons, twenty-two sisters and one Almoner;

(*g*) Quarters for eight medical officers with six two-bedroom flats and two three-bedroom flats, the whole to be contained in a single multi-storey block;

(*h*) Quarters for twelve hospital assistants to be provided with two bedroom flats, the whole accommodation to be provided in two multi-storey blocks;

(*i*) Attendants Quarters for ninety-six hospital attendants to be provided with small self-contained flats in four multi-storey blocks.

480. On the early completion of this scheme, the existing two wings will be completely modernized bringing the hospital on the present site to a minimum of 350 beds. The second phase provides for a further minimum of 240 beds on another site which is being reserved for the purpose.

481. The very considerable increase in the number of admissions to this hospital and the rapidly increasing attendances at its out-patient divisions over the past four years clearly shows that even with the new extension which is expected to be completed by the end of October 1954, the demand will not be fully met. However on completion of this project a great deal of congestion that is being experienced at present will be relieved. Further the provision of 'resident' quarters for housemen and medical officers within the

institution will solve the problem for medical internship which is essential for post-graduate specialisation.

482. In spite of the bed strength remaining at the same basic level of 240 beds (to which it was increased in 1948), made up of 190 maternity and 50 gynæcological beds *excluding cots,* an all time record of 23,807 cases were admitted during the year. Of this figure 20,450 were for maternity whilst 3,357 were for gynæcological conditions, as against 20,426 admissions last year consisting of 17,380 maternity and 3,046 gynæcological. The demand for maternity beds became so great in October this year that in spite of reducing the length of stay of each normal patient in the hospital from three days to two it could only be met by providing twenty further beds and placing them along corridors. There were 1,695 deliveries during that month—an all time record so far.

483. Again it must be stressed that while the Rural Area with some one third of the total population has already an excellent domiciliary Government service from which only abnormal cases go to Kandang Kerbau, in the City domiciliary midwifery is impossible for the majority are housed in cubicles and tenements which give no privacy. In consequence the idea is to admit as many of them as possible, giving them some service, as against concentrating on a comparative few. The improving infant and maternity statistics of the Colony indicate that this policy has paid, and is, paying dividends. So far no case demanding admission has been refused but an increasing effort is being made to cover the 'short stay' maternity case by home visiting and attention through the City Health Authority. In addition a home follow-up service is being introduced as a part of the hospital service. In addition the patient with suitable accommodation at home will be encouraged to receive attention there. Some 91 per cent of maternity admissions are non-paying cases. The system of a small paying wing will continue to be a necessity even when Singapore has some good private maternity homes for abnormal cases of this type. At the moment the difficulty is the almost complete lack of satisfactory private homes.

484. The hospital dealt with almost 50 per cent of the total births in the City Area during the year as only a comparatively small number of abnormal cases were sent on from the rural areas where an almost complete domiciliary Government service operates.

Maternity

485. The number of admissions for the year was 20,450 with 17,958 deliveries as against 17,380 admissions with 15,321 deliveries for 1952. The number of maternal deaths was 38 or 2.1 per 1,000 as compared with 3.80 per 1,000 last year. 265 cases were brought in after delivery. Of the total deliveries 15,747 were normal and 2,211 abnormal as against 13,467 normal and 1,854 abnormal for last year. Of these 650 were breech deliveries, 219 delivery by forceps, and 260 caesarean cases as against 592 breech, 220 forceps and 228 caesarean in 1952.

486. There were two sets of triplets, 195 twins and 498 still births.

Gynæcological

487. There were 3,357 admissions of which 80 per cent were free cases as against 3,046 admissions with 74 per cent of free cases in 1952. The number of deaths was 16 or 0.4 per cent.

488. 4,212 operations were performed of which 3,138 were on in-patients and 1,074 on out-patients as against 2,739 in-patients and 628 out-patients for last year.

Out-patient Clinics

Clinic	1947		1949		1952		1953	
	New Cases	Total Attendances	New Cases	Total Attendances	New Cases	Total Attendances	New Cases	Total Attendances
Ante-natal and Gynaecological	7,033	24,683	12,665	37,010	16,784	39,737 (22,880 ante-natal)	22,429	63,469 (35,001 ante-natal)
Post-natal:—								
Mothers ..	..	19,930	..	6,931	8,096	8,545	6,860	8,092
Infants ..					7,733	7,734	6,307	7,343
Women and Children ..	..	31,908	16,333	49,139	17,365	64,019	20,593	78,080 (40,365 children)
Total ..	7,033	76,521	28,998	93,080	49,978	120,035	56,189	156,984

489. It will be noted that all figures given are outstanding records except in the case of the post-natal attendances which dropped slightly as compared with 1952 in that cases of this nature were referred to clinics nearer home for this purpose. Out-patient attendances have doubled over the last few years while in-patients who showed a 100 per cent increase by 1948 over the pre-war figure have doubled again since that date. That the maternal mortality figure of the hospital was almost halved over the year and was, in consequence, a record, indicates that women are now seeking proper attention earlier than at any previous period, a really satisfactory feature when it is considered that the admission of abnormal cases is on the increase. Some women urgently needing attention still refuse the advice which is given but this adverse factor is steadily decreasing. Cases requiring forceps delivery continue to be low and eclampsia cases show a welcome reduction. While the present hospital was not designed to give special attention to premature infants and infants requiring particular attention action has been taken to turn certain rooms attached to wards into nurseries for specialised care and of course the new plans fully cover this contingency. The new planning also provides for much smaller wards and two complete operating suites in addition to minor operating units. All labour wards and operating suites are being fully air conditioned.

490. Routine laboratory examinations carried out at the hospital numbered 45,378 as against 39,481 in 1952 and 29,346 in 1951.

491. The new X-ray division dealt with a total of 1,582 patients with 2,574 X-rays. It acts as a subsidiary to the main unit at the General Hospital. Here again a much more elaborate set-up in this connection is a part of the new design. Criticism has been levelled at the lack of a malignant disease treatment centre in either the present or the new hospital but it is the intention to concentrate all this kind of work at the General Hospital under a team of experts rather than an expensive duplication. While routine treatment continued to be given at Kandang Kerbau, encouragement was given to the transfer of such cases to the General Hospital where beds are made specially available when required.

492. The important Central Midwives Board continued its periodic meetings. In particular it dealt with the difficult problem of modernizing the training of midwives and of exercising sufficient control over the work of the

midwives in practice already. An up-to-date revised Midwives Ordinance introducing and covering a new scheme of training based on that in the United Kingdom was under review. The difficulty so far has been to include provision for a continuance of the Malay girl with rather a lower standard of education, but who is quite acceptable and so necessary to the rural areas. The World Health Organization is helping by the provision of an experienced midwifery tutor and adviser until local staff is sufficiently trained in this respect. Scholarships are available in this connection for overseas study after probationary training and experience on the spot. The scheme includes a domiciliary midwifery unit.

493. A new Ordinance for the Registration of Nursing Homes and Maternity Homes was also drafted.

494. As highly qualified midwives must take on more and more of the work previously undertaken by nurses, the new training and all to do with it have a most important bearing on the immediate future.

495. The Hospital continued to be a part of the Medical School, and students received their maternity and gynæcological practical training here as in previous years. Nurses and midwives continued to receive lectures and practical demonstrations for the certificates of the Central Midwives Board; 123 medical students attended the hospital during the year, while 28 nurses and 38 pupil midwives sat for their respective examinations. The present institution has no space for medical interns, unfortunately, but this difficulty will be remedied under the plans now under implementation. Such residence is essential for post-graduate specialization.

496. Medical Superintendent: Dr. A. Arulanandam, L.M.S. (Singapore).

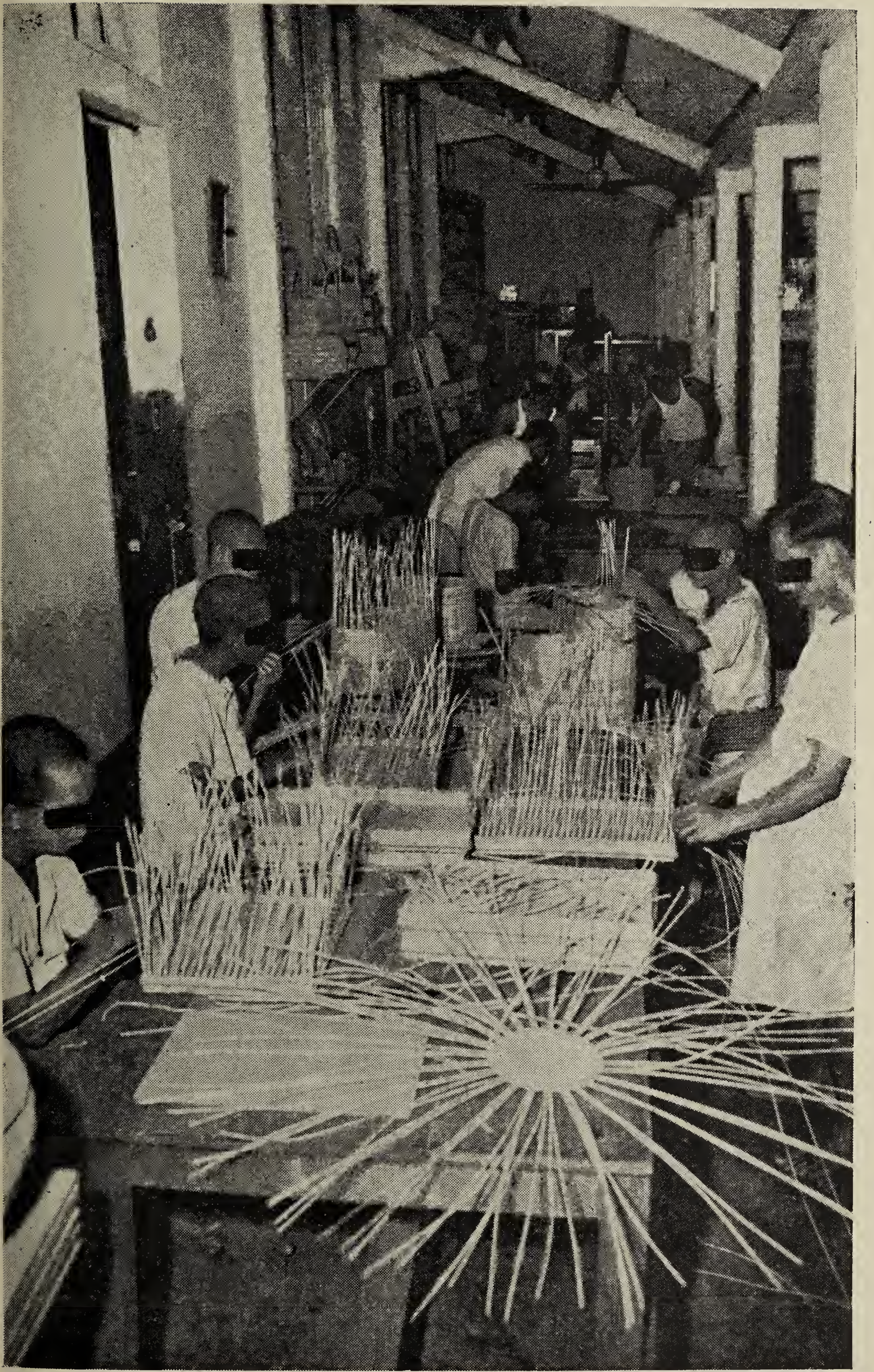
497. Professor of Gynæcology and Obstetrics: Professor B. H. Sheares, M.D., University of Malaya, L.M.S., Singapore, M.R.C.O.G. (London).

498. Gynæcologist and Obstetrician: Dr. A. C. Sinha, L.M.S. (Singapore), M.R.C.O.G. (London).

499. Senior Assistant: Dr. (Miss) E. V. Crowe, M.B., CH.B., F.R.C.S.E.
Dr. J. W. F. Lumsden, M.A., M.B., CH.B., M.R.C.O.G.

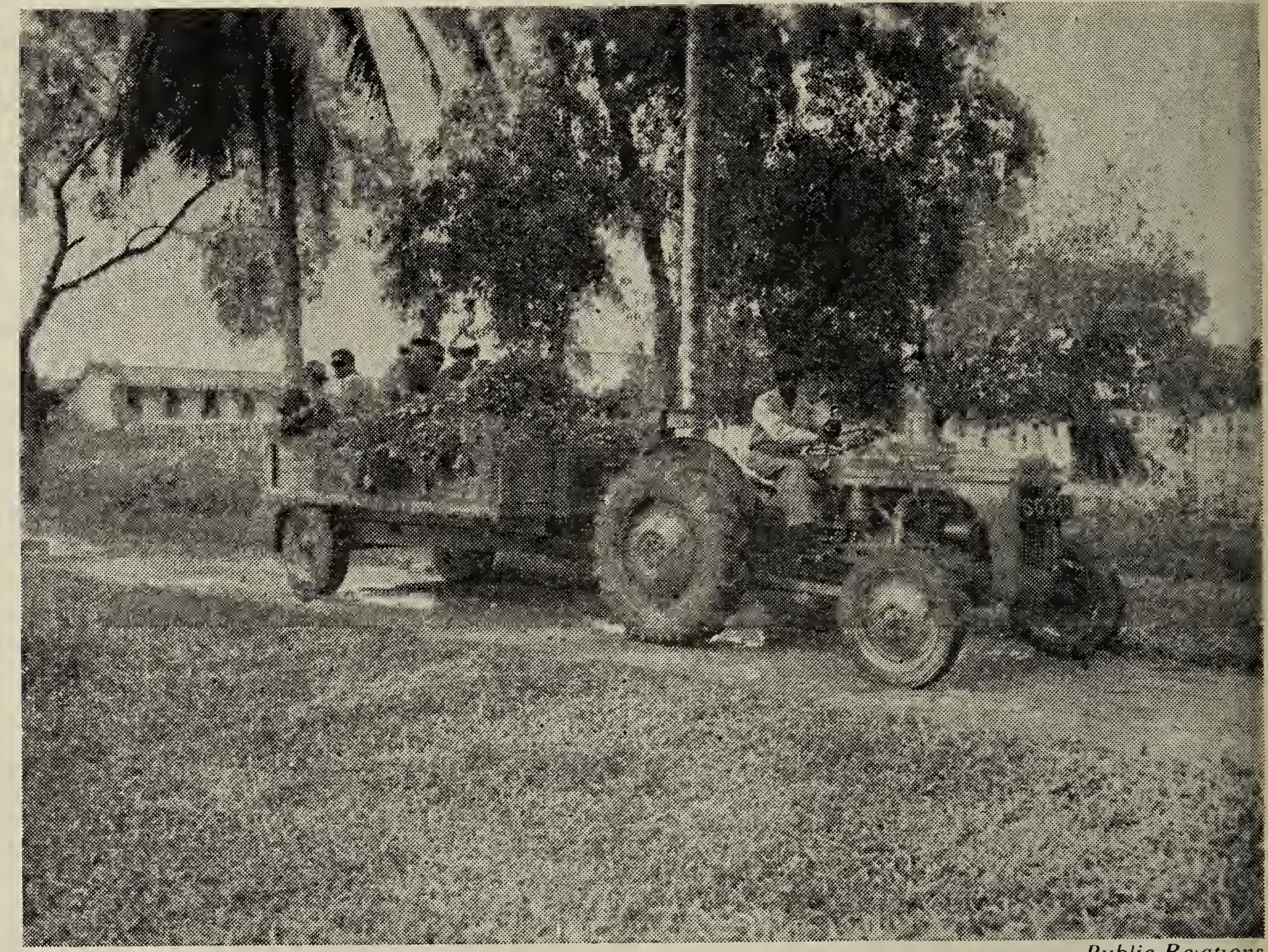
CONGENITAL MALFORMATIONS

		No. of Cases
(1) Congenital malformation of nerves and system and sense organ		5
(2) Congenital malformation of genito-urinary system		3
(3) Congenital malformation of bone and joints ..		14
(4) Congenital malformations (not elsewhere specified)—		
Deformity right leg	3	
Harelips	20	
Extra thumb, right hand	1	
Deformities, toes	1	
Bone formation at face and head ..	1	
Exampolos and Congenital Malformations ..	1	
Extra finger, left hand	1	
Cleft Palate	15	
Imperforated Arms	1	
Congenital Abnormalities	1	
Both hands and wrists deformed ..	1	
Double thumbs, left hand	1	
		47
Total ..		69



Public Relations

Basketry work. Male O.T.D.—Woodbridge Hospital



Public Relations

Bringing in food produced by patients at Woodbridge Hospital

Public Relations

Part of the potted plant nursery—Woodbridge Hospital

1953

Total Deliveries	Total Normal Deliveries	Booked Cases	Unbooked Cases	BREECH		CAESAREAN SECTIONS		Born before arrival	Pre-Eclamptic Toxaemia	Eclampsia	Ante Partum Haemorrhage	Post Partum Haemorrhage	Retained Placenta	Manual Removal	Forceps	Maternal Deaths	BIRTH WEIGHT BORN ALIVE		Twins	Triplets	Still-Births	Miscarriage
				Primiparae	Multiparae	Upper Section	Lower Section										4 lb. and under	Over 4 lb.				
17,958	15,747	4,375	13,583	151	499	8	252	265	760	58	296	1,186	292	264	219	38	2,091	15,543	195	2	498	25

500. Notes from the Almoner's Report, Kandang Kerbau Maternity Hospital, 1953—

(i) During 1953, 771 patients were registered for help of one form or another. This is double last year's figure of 384 patients registered. The majority registered were 278 Hokkien-speaking, with Teochew-speaking 126, whilst Cantonese numbered 107, Kheks 29, Hylams 8 and Indians and Malays about 90 each. It is interesting to record, however, that Malays were four times as numerous as before and many of these had been referred to the Almoner by the Malay Women's Association. The numbers of Europeans and Eurasians interviewed were seven each.

(ii) It has been possible to investigate only a proportion of the cases referred to the Almoner and this indicates the need to add to the present staff of one, if an adequate service is to be performed in this connection.

(iii) Three hundred and seventy-seven patients were referred to the Social Welfare Department for assistance, and twenty to more than one section. The increased benefits given are helpful, but it is still very difficult for a widow to manage if she has several small children unless there is another adult friend or relative with whom she can leave the family for at least part of the day in order to supplement her income. Unfortunately there are a few patients who are more interested in receiving sickness allowances than in getting well. There is no excuse for any patient to fail to attend hospital because of the fare as 1,708 visits to hospital were paid for out of money from the Silver Jubilee Fund making a total of $1,232. Forty-five patients during the year were referred to the labour exchange. A few more have been found employment privately, and one girl is being trained as a dress-maker by placement made through the Labour Exchange.

(iv) The Almoner's Fund has been used to help patients who for some reason or other cannot be assisted by the Social Welfare Department. The chief need has been for mothers in serious difficulty who have not been resident in the Colony for a year, and for fares for patients who are not in receipt of money from Public Assistance but who have to attend daily for dressings or injections. Various gifts from the general public (in the form of toys, clothes and magazines) and also from the Red Cross, and milk from UNICEF, have been gratefully received and distributed.

(v) Priority throughout the year has been given to problem babies. These form two main groups:—

(*a*) those who cannot be looked after by their mothers;

(*b*) those who have mothers who for some reason or other do not want their babies.

(vi) The two groups present completely different problems. The first consisted of twenty-five babies and included the few mothers who died. The mortality rate for babies of this nature has always been high, in spite of frequent visiting and reference to the Infant Welfare Centres. A new system has now been introduced, however, whereby the person taking the baby comes to the ward for several days previously to learn feeding methods under the direct supervision of a sister or staff nurse. The result in the future of these infants has been most satisfactory.

(vii) In the second group the mother is always encouraged to take her baby home with her partly because new born babies thrive much better with their own mothers and partly because it gives a mother a chance to know her own mind. Immediately after giving birth she is not usually competent to give a considered judgment on such an important matter. In addition the Almoner is given a chance to help the patient to solve her problem. Sixty-eight mothers were reported as not wanting their babies. Of these 26 were Hokkien, 12 Teochew, 8 Cantonese, 8 Khek, 4 Hylams, 2 Malays, 3 Indians, 2 English, 1 Dutch, 1 Shanghainese and 1 Arab. Twelve of these died, not a surprising result as in seven cases the reason given for not wanting them was because they were small, looked ill and would give too much trouble. The fate of six is unknown. Of the remainder, twenty-four were kept by their mothers and twenty-six were given away. Of the latter a third were inter-family adoptions. Three girls who had obvious physical deformities were given to the care of the Convent. Where the husband is not the natural father of the child a difficulty invariably arises. Other reasons given are purely economic. Housing conditions, matrimonial unhappiness and superstition are factors contributing to the problems faced.

(viii) The twenty-four mothers who finally kept their babies gave varied reasons for hesitation, the most frequent problem being an unhappy home background. Often the mother feels well enough to leave the hospital but does not want to look after another child with several other small children already on hand and no help from some other women, particularly so where a difficult baby to raise is at issue.

(ix) The motives for wishing to adopt babies are equally interesting. The most obvious is of course the lack of children from the marriage. In some cases women hope that an adopted baby will keep a marriage going. Sometimes a wife is lonely after the departure of her children for one reason or another. There are far more good Malay and Indian homes wanting babies than there are unwanted babies, and it is not difficult to find a good Chinese home for a boy.

(x) All transferred girl babies known to the Almoners are notified to the Social Welfare Department for registration and subsequent supervision. Close co-operation is also maintained with the Women and Children's section over the related problem of the protection of women. A difficulty which constantly arises is that of women who are too cowed by years of repression to take advantage of what the law offers.

(xi) A lack of sufficient education is in part responsible for many of the difficulties in which some women find themselves. If a woman marries happily and her family background is good she will usually live a happy and contented life within her circle of friends and relations but if an upset such as widowhood or desertion or disease occurs she finds herself incapable of solving her own problems.

(xii) It is extremely rare for a woman seeking the advice of the Almoner to be able to sign her own name. This does pose the problem that she is easy prey to anyone who wishes to defraud her. Even a visit to a Government Department can be alarming to a woman used to a quiet kampong life. This means that much of an Almoner's time is spent in helping patients to solve general problems which may or may not have any connection with the illness which brought them to hospital.

(xiii) Home visiting is usually an essential in all cases seen and 565 such visits were undertaken during the year. Close co-operation is maintained with the Infant Welfare Centres and 186 mothers were referred there where special supervision was required for the babies.

(xiv) Two student Almoners have taken part of their practical work in the hospital and five students from the Children Society have come for a few half days to see the nature of the work covered by the hospital. A prospective student for the Social studies course in October 1954, is working with the Almoner in the afternoons in a voluntary capacity to learn something of social work.

CHAPTER TWENTY-ONE

TRAFALGAR HOME SETTLEMENT.

501. In 1951, the name 'The Leper Settlement' was officially changed to 'Trafalgar Home'. This name took its origin from the rubber estate on which the Settlement has been built.

STAFF

502. Dr. R. J. Grove-White, M.D., M.R.C.P.E., acted as Medical Superintendent at the beginning and end of the year and during his absence on leave from May to October, his duties were covered by Dr. C. E. Smith. During the year, the resident Medical Officer was changed when Dr. M. D. Goulding went on transfer and Dr. Gan Kok Liang took his place. The non-inmate staff was increased to three Hospital Assistants, two Religious Nursing Sisters and two Clerks.

503. The rapid expansion of the Settlement has brought many of its own problems, in particular, those of internal administration and control of the large number of inmates. An increase in the resident staff for the institution will be necessary if a proper standard of medical care and discipline is to be achieved.

INMATE STAFF

504. The strength of the adult inmate staff is now 201. Some of the boys who were formerly classed as apprentices have been returned to school where a senior class has now been formed for training in technical subjects. Some further increase will be made in 1954 and more still will be necessary in 1955 to keep up with the expansion and development of the Home. All routine camp duties are performed by the inmates under the supervision of the inmate supervisor and the resident Hospital Assistant-in-charge.

505. There are twenty inmate dressers and ten nurses employed in the Hospital wards under the supervision of two Religious Sisters of the Franciscan Mission.

506. The salary rates of the inmate workers which were revised during 1953 can be considered to be satisfactory for those inmates residing in the camp who have no dependants outside, but are not sufficient to support dependent families.

DEVELOPMENT OF TRAFALGAR HOME UNDER THE MEDICAL PLAN—1953

507. During 1952, considerable progress was made in the development of the Settlement under the Medical Plan. The school which was presented by the Singapore Rotary Club and started at the fall of 1952 was opened by His Excellency the Governor in February 1953. It has proved a most satisfactory addition and consists of five classrooms and a covered-in area for games. Three of the classrooms are partitioned off by folding doors and so can be opened up to make a hall suitable for cinema shows and recreation purposes. A cinema projection room was built so that 16 mm. films can be shown in the hall and 35 mm. films can also be shown to an open-air audience. This hall commemorates Mr. K. L. Engelmann, President of the Singapore Rotary Club for 1951/52, who died suddenly a few months after

relinquishing the chair in June 1952. Mr. Engelmann had been deeply interested in this project and hence the decision to associate his name with this Community Hall.

508. Two new double storeyed wards, one of forty beds and one of sixty-four beds were completed during 1953 and occupation took place at the turn of the year. These wards will house the male and female infirmaries in separate sections, thus releasing the previous ward accommodation for other purposes. The upstairs part of the female ward will be used for a girls' dormitory.

FURTHER EXTENSION

509. At the end of the year the Public Works Department was well ahead with the laying of a new electric cable and water supply to the Settlement. The water storage tank has been raised a further 20 feet and a new 6 inch main installed. The steady increase in the number of cases coming forward for treatment and the distressingly large number of those old cases who were becoming bacteriologically fit for discharge but are so deformed that they cannot face competitive life outside the Settlement, has meant that the capacity of the Home must be still further increased. The Estimates for 1954 include the erection of a further 150 quarters, each capable of holding 3 patients. Action is to start on this project early in the new year. Thus by the end of 1954 with the 69 chalets housing 276 patients completed in 1952 there will be excellent accommodation for some 1,100 patients leaving the old school and 2 temporary wards for the proper development of an occupational therapy scheme. This should deal effectively with our overcrowded position for some time to come, though it must be remembered that the Federation are still looking after some 210 patients for us and these patients will be returned when the increased accommodation now planned is available.

STATISTICS

	Male	*Female*	*Total*
Total Patients remaining on 31st December, 1952	488	236	724
Admission from 1-1-53 to 31-12-53	182	48	230
Discharged from 1-1-53 to 31-12-53	65	19	84
Absconded from 1-1-53 to 31-12-53	50	8	58
Transferred to other Hospitals from 1-1-53 to 31-12-53	6	3	9
Deaths from 1-1-53 to 31-12-53 ..	8	3	11

Total Patients remaining on 31st December, 1952 made up as follows:—

MALES		FEMALES		TOTAL
Adult	*Children*	*Adult*	*Children*	
476	65	200	51	792

Admission of +ve new cases during the year 1953

Males = 133 Females = 38 Total = 171

Comparative Table of +ve cases admitted

Year	*Males*	*Females*	*Total*
1948	163	42	205
1949	158	46	204
1950	172	50	222
1951	154	44	198
1952	107	42	149
1953	133	38	171

Admission during the year 1953—(Classified by Race)

—	CHINESE		INDIANS		MALAYS		EURASIANS		TOTAL		Total Amount
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Adult ..	137	34	13	1	6	1	..	..	156	36	192
Child ..	25	12	..	..	..	..	1	..	26	12	38
Total ..	..	..	..	..	..	..	..	..	182	48	230

DISCUSSION ON STATISTICS AND GRAPHS

510. At the end of 1952, an analysis of both in-patient and out-patient records was started with a view to obtaining a more accurate picture of the disease. During 1953, investigations were continued and attempts made to improve our statistical records.

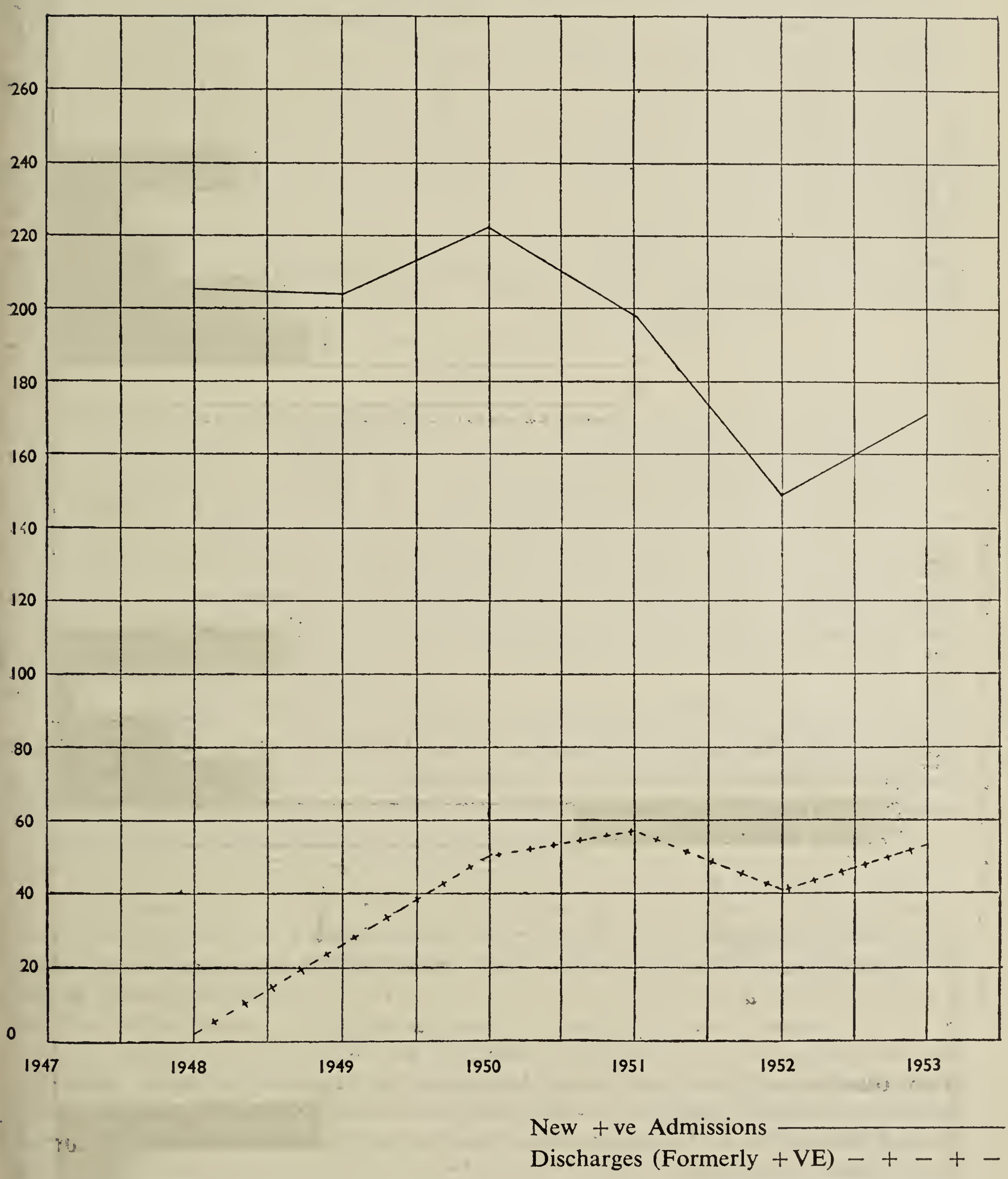
511. Graph 1 shows the number of positive smear admissions since 1948. It will be seen that the annual number increased until 1950, a slight drop in 1951 and a large drop in 1952. 1953, however, shows a slight increase over 1952 which was probably an unduly low figure for the trend. Discharges from the Camp show a steady increase up to 1951 which is now beginning to tail off. At the same time a number of older cases with marked deformity are becoming negative with sulphone therapy, but have not been able to take their discharges from the Home due to social reasons. It seems probable that the number of such cases will ultimately reach 200 to 250 persons. If the present falling trend of admissions and rise of discharges continues, the curves should meet somewhere about 1956 or 1957.

512. Graph 2 shows the patients' estimate of the period of the presence of lesions prior to seeking assistance. Reasonably accurate records are only available in 1952 and 1953, but it will be seen that there is a distinct tendency to earlier treatment with the number coming in the first six months much higher in 1953 than in 1952, but the number of cases who have had lesions for over five years shows very little fall. Case finding, contact chasing, and more sympathetic approach to the social problems of the disease are all helping towards an improvement in earlier diagnosis and treatment.

Graph I

TRAFALGAR HOME, SINGAPORE

GRAPH OF NEW ADMISSIONS/DISCHARGES



Graph II

STATED-DURATION OF DISEASE

PRIOR TO SEEKING TREATMENT TRAFALGAR HOME, SINGAPORE

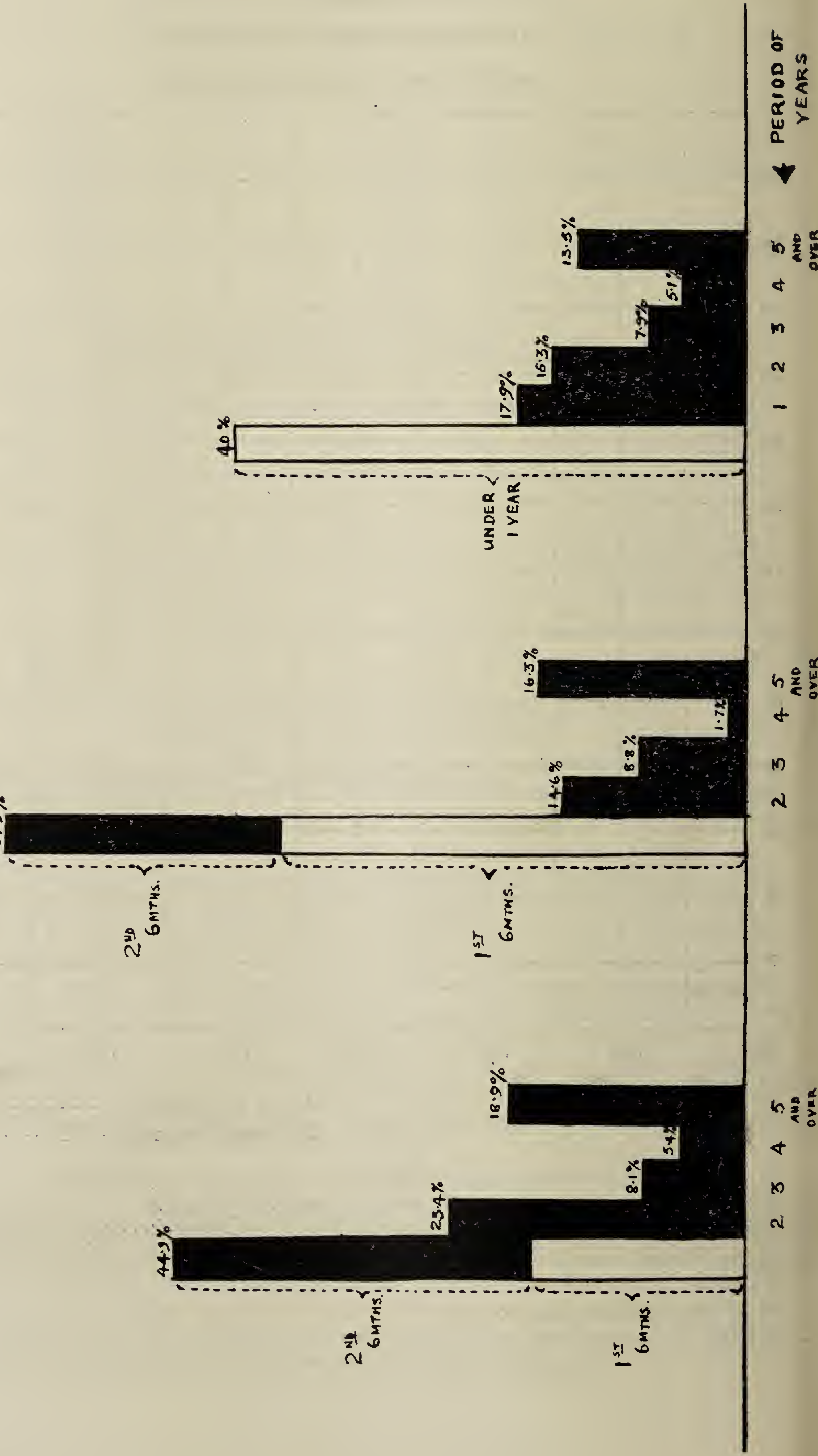
POSITIVE CASES (in-patient)

NEGATIVE CASES (out-patient)

1952—149+VE Cases

1953—171+VE Cases

1953—215–VE Cases



513. The question of the incidence of leprosy in the community is one which arouses considerable interest. Dr. Molesworth considers that in the Federation of Malaya, the incidence is approximately half of one per cent. Whether such a high incidence prevails in Singapore is very doubtful. Nevertheless it is possible that we have still a long way to go before we have tabs on the majority of our cases, as at present we have only some 1,500 under observation and control. The falling trend of our admissions of positive cases and the rise in the proportion of early cases, on the other hand, does not at present suggest that our present methods are at all inadequate. The planning of an adequate scheme can only be satisfactory if based on a more accurate knowledge than the present studies. The help of a leprosy survey on a sample of the population would be of great value in planning the extension of not only the Trafalgar Home, but the domiciliary methods of control, and would pay dividends in greater efficiency. Such a survey might well be combined with a tuberculosis survey, if and when this materializes.

TREATMENT

514. Treatment has continued along the same lines as in previous years. The most frequently used drug has been dapsone by injection, sulphetrone in aqueous solution being the next used. Sulphetrone and diasone tablets have been used in a few cases, and also diaminodiphenyl-sulphone by mouth. The advantages of injection treatment over oral in regard to some patients is considerable as after a period of improvement, there are some who do not wish to recover sufficiently to be discharged and discontinue oral therapy under their own control in the hope of prolonging their stay. The number of such cases who do not desire to recover completely is considerably greater than had been previously thought.

515. During 1952/53, a number of cases were put on isoniazid to try its efficacy in leprosy. The bacteriological results were uniformly poor although the general condition of the patients improved, probably due to the increased appetite associated with the exhibition of this drug. It has now been discontinued except where indicated for concomitant tuberculosis.

DENTAL TREATMENT

516. The Chief Dental Officer, Mr. Gittins, instituted a regular weekly visit to the Home on 24th September, 1953, and so far has been able to treat all acute dental conditions.

NOTES FROM THE ALMONER

517. Up to March of 1953, the ground had been broken and the Almoner from Tan Tock Seng Hospital was going out to Trafalgar Home at intervals, and more will be attempted in the near future when the number of Almoners available is increased.

518. When the number of in-patients reached 780 the need for regular Almoner work at the Trafalgar Home became more apparent. In consequence the Tan Tock Seng Hospital Almoner has been devoting a significant part of her time for work in this institution. The new Trafalgar Home Health Sister was most helpful in many ways and reports on her Home visits were made available to the Almoner.

519. Leprosy Board is the statutory body which discharges patients from the Home and all suitable cases are brought before it. Since April 1953, all patients coming up for discharge are seen by the Almoner; home visits are

made, and reports prepared on each case are made available to the Board. Jobs, homes and assistance have to be found and of 142 seen by the Almoner, 119 have been boarded. Of this number:—

87 have actually left the home;
25 are waiting to go, or until homes and jobs can be arranged for them;
21 are so deformed that they have been allowed to stay indefinitely;
1 absconded before attending the Board.

520. Now as a patient approaches the stage when discharge can be considered, he is referred to the Almoner so that arrangements for going out may be commenced, and if possible, completed by the time the patient is fit for discharge by the Board.

Those Boarded but still in the Home (i.e. forty-six patients)

521. Of the twenty-one very deformed who have been allowed to remain, many have been in the Home for a considerable number of years: they could be sent out if there was somewhere for them to stay where they could be given the minimum of help necessary for them to manage on their own. A small self-supporting settlement or community home on the lines of the homes run by some Chinese communities for the old and sick of that particular community is needed for these people.

522. Of the twenty-five requiring jobs and homes, it has been found particularly difficult to place those who have been in the Home for two or more years. Most difficult of all are youths who came into the Home as children and are going out inexperienced in the ways of living alone in a city and with no one to help or guide them, nowhere to live, and no jobs. Much more help is needed for these people as they often fall outside the scope of the Social Welfare Department on account of age. A hospital or small residential training school or rehabilitation centre where these youths could spend a short period while getting used to life outside Trafalgar Home, is very necessary, as they are much less able to cope with conditions than youths of comparable age outside.

523. In-patients who have had gardens or been poultry rearers or basket workers, etc., need help, advice and grants to set them up again when they are discharged, perhaps even to buy initial stock or help to build or repair a house, so that they can settle down and be useful to themselves and the community. Some have wives or husbands in the Trafalgar Home and children boarded out with relatives or in Homes and Convents. If the first of the family to be discharged can be helped to make a home, the other partner and the children may eventually be able to join in the family circle.

524. Proposals have been made to the Singapore Leprosy Relief Association and two sub-committees were formed, one to advise and assist the Almoner in spending money on the repair and renewal of attap houses, and the starting up of industries for discharged patients; gardening, poultry, rearing and basket making, where the Almoner would have neither the time nor experience in local custom to spend wisely. The second committee was formed to try to find homes and jobs so that patients fit for discharge could go out.

Absconders

525. Fifty-eight people absconded during the year and twenty-two came back. An interesting point is that due to follow-up by the Health Sister and through the spread of health education, some patients who had absconded five or more years ago have come back for treatment. People in the last stages of leprosy who have been kept hidden by their families and friends have also come to the Home, some only to die, others with some last chance of help or at

least to seek asylum. One man had been looking after his widowed mother, and when she died he came for admission. He was in a very bad state, positive and very crippled.

Marriages and Births

526. Two couples were married and arrangements are in hand for three more weddings.

Thirteen children were born to patients in the Home. The mothers were transferred to Kandang Kerbau Hospital for labour and returned immediately, the baby remaining in Kandang Kerbau Hospital where the Almoner, in consultation with the Almoner at Trafalgar Home, made arrangements for adoption or for the baby to go to relatives or an institution until either parent could take it back. It is planned that in future a careful check of these babies will be kept at regular intervals so that they may be followed-up for some years. Very special precautions are taken when such patients enter other hospitals for any purpose. The children born to them are of course free of the disease.

Children

527. Quite a few children in the Home have been deserted by their relatives when put into Trafalgar Home; this is especially true of 'adopted children' and when the time comes for discharge, no one can be found to take the children. Three schools, in particular, have been very good to us in making room available for our discharged children. Through the Singapore Leprosy Relief Association's 'Children Committee', a few children have been helped with money for a period on discharge. Sometimes difficulty is found in getting these children into schools, even though they have had some teaching at the school in the Home. A school for special training or schooling of disabled on the lines of 'Boys Town' appears to be needed for these and other handicapped children.

Women

528. Discharging women from Trafalgar Home is the most difficult problem. Single women have lost track of their friends and are unknown in their Kongsis or Clubs; married women often find their husbands have taken a second wife and they are not wanted, or they have been divorced or the family has moved house and cannot be found. Women, especially deformed women, find it very hard to get a job and to get accommodation when they are not known. To get 'living-in' jobs is even more difficult with no friends or relations to help them with introductions. They cannot be turned out on the street, and much more time is needed than is at present available to canvass about the town to find places for them. A full time Almoner will find her days well occupied finding jobs and homes alone, in order to help the even flow of discharges and admissions.

Men

529. The men in the Home have, to date, been very loath to learn any trade or art which might be put to use in re-establishing them in work on discharge though some improvement has occurred lately. Adult education classes are proposed and with more discharges, more may be absorbed in the staff of the Home.

Singapore Leprosy Relief Association

530. The Singapore Leprosy Relief Association has collected funds and supplied many of the needs of the Home through its various committees. This Association and all its workers have done magnificent work.

Finance

531. The Government makes a yearly grant to the Almoner ($3,000 in 1953) for assistance to patients attending the Home or the Out-patient Department at Tan Tock Seng Hospital. Much of this goes on fares, and buying beds, clothes and essentials for patients about to be discharged and in helping the families of people who are in-patients. There is another fund, the Leper Aid Fund, which is used at the discretion of the Director of Medical Services. As a result of the generous gesture of the Teachers' Training College in giving a Charity performance in aid of the Almoner's Fund, a new Fund, the Almoner's Samaritan Fund, Trafalgar Home, has just been opened. This Fund will receive donations and will help patients in difficulties not covered by the other funds.

532. Much progress has been made during the year in establishing the Almoner's Department on a firm foundation and setting up a system which can expand as the work expands. There is much still to be done to make the division a good one. Trafalgar Home is probably one of the first settlements of this kind to have an Almoner. 'Follow-up' and research into the histories of all the patients would probably produce much useful information. It is envisaged that a new index and filing system, with research in view, will be started during the coming year.

OUT-PATIENT CLINIC FOR LEPROSY

533. In April 1953, a Health Sister was appointed to work in connection with the out-patient clinic for non-infectious cases of leprosy, and she at once set about investigating reasons for absenteeism which was causing considerable concern. Inquiries showed that one of the chief difficulties was the fact that clinics were held during office hours and many patients did not wish their employers to know of their attendances. Accordingly, the clinic hours were altered to allow patients to come during the lunch interval and special priority was given to certain patients where necessary. The result of this alteration has been very satisfactory.

534. Visits have been made on homes of patients, both on the families of patients in Trafalgar Home and on non-infectious cases for the examination of contacts and detection where possible. At first there was little co-operation especially from the families of patients in Trafalgar Home, and the visits were resented. After the hospital identification marks were removed from the Health Visitors vehicle, visiting became easier and home visits have been used to enable patients to speak to relatives and maintain contact between the patient and his home with a view to ultimate discharge. Precautions are of course taken to avoid contact with children. This has helped to keep child patients in Trafalgar Home in touch with their families and adults with their homes. Quite a number of contacts have been found to be in the early stages of this disease and have been placed under treatment, and in a few cases, the source of infection has been located.

OCCUPATIONAL THERAPY—TRAFALGAR HOME

535. When occupational therapy was first commenced in the Home, it got away to quite a good and enthusiastic start, but during the second year, there have been many difficulties. The most important of these has been that of maintaining the interest of many of the patients in this work. With some notable exceptions, most of the patients fail to understand the intrinsic value of the work to themselves and look on any form of occupational therapy only as a potential augmentation of their means of livelihood; accentuating

this has been the relatively slow rate of work which makes it difficult, if not impossible, to make appreciable profit on such things as basket work in competition with the prices on the open market, and consequently, for this type of work which is very valuable for certain types of patient, something in the nature of a subsidized industry will be necessary. At the end of the year, discussions were in progress with the Chief Employment Officer of the Labour Department with a view to setting up both a training centre and a small sheltered workshop for the patients who are either very long term or permanent residents.

536. It is proposed in 1954 to start some form of vocational training for boys and girls who cannot be expected to benefit further from the English education in the school. A start will be made in needlework and handicrafts for the girls and carpentry for the boys. It is hoped that this in time will develop into a vocational training school.

SCHOOL

537. The school has made good progress and its 116 children were divided into five classes under Mr. G. D. Champion. The school which had the good fortune to acquire the services of two trained inmate teachers and a trainee during 1952, lost their services in 1953 and while the school's loss was their gain, it has made it very difficult to maintain the high standard achieved in the previous year. As children from the school were discharged during the year, a few only were found satisfactory accommodation in outside schools at the appropriate standard. A qualified nun teacher of the Franciscan Order of the Divine Motherhood is due to arrive early in 1954 to assist in this very essential work.

SINGAPORE LEPROSY RELIEF ASSOCIATION

538. The Singapore Leprosy Relief Association which was formed in 1952 has gone from strength to strength and has now brought the needs of sufferers from this disease to the notice of the public. It has raised considerable funds for welfare work. Amongst other items, it has sponsored the training of an Almoner at the University in the hope that one will become available for full time work in this connection. At present the Senior Almoner at Tan Tock Seng Hospital has to cover additional duties at Trafalgar Home.

539. The Lee Foundation through the Singapore Leprosy Relief Association presented the Home with equipment for a children's playground which was erected by Malayan Wire Mesh Company.

SOCIAL ACTIVITIES

540. For the past five months, groups of men from the Royal Air Force (Seletar) have come down on certain evenings of the week to play games with the patients, and to hold sing-songs with the children.

541. On 30th November, 1953, the members of the Bethesda Gospel Hall paid their annual visit to the Home and distributed gifts to the children and the patients.

542. On 10th December, 1953, the Royal Air Force (Seletar) Choir gave a recital to the patients on the Basket-ball court. Their Pipe Band came down to play on the occasion of the Singapore Leprosy Relief Association's Party for the children of the Home.

543. On 19th December, 1953, the Franciscan Sisters gave their annual party for the children. Mr. Jimmy Choo gave a magic show. We are also very grateful to Mr. Tan Hock Chuan for coming up to entertain the patients at

the parties given by the Singapore Leprosy Relief Association on 16th and 30th December, 1953, for the children and adults respectively. Our thanks are due to the kind lady who presented the School with a piano, and also to the five generous people who donated radios to the Home.

544. On 2nd January, 1954, there was a Children's Party organised by the Royal Air Force (Seletar) and this time their Brass Band played selections to an appreciative audience.

SCOUTING AND GUIDING

Scouts

545. Early in August 1953, the Scout Troop was re-organized. A Rover Crew was formed, and on 12th December, 1953, a Troop Flag was presented by Mr. Pung Ah Leong. The Group now has the services of Mr. Kana, from Seletar, who was recently promoted to be the 33rd Group Scoutmaster. Mr. Ow Fook Choon is the Scoutmaster-in-charge Trafalgar Home Troop, with Mr. Chiam Ah Bee, the Assistant Scoutmaster. A group of men from the Royal Air Force (Seletar) has come down regularly to act as Scouters and has done a great deal of such excellent work with the Group.

GIRL GUIDES

546. The Girl Guide Company (12th Singapore) was revived, after a lapse of some months, in August 1953. The Company now numbers over thirty Guides of whom one half are new recruits. Work has begun for Second Class badges. The Guides are extremely keen and appear to enjoy their weekly meetings to the full.

SIXTH INTERNATIONAL LEPROSY CONGRESS

547. The Sixth International Leprosy Congress was held in Madrid from 3rd to 10th October, 1953. Dr. R. J. Grove-White represented the Government of Singapore. Dr. B. D. Molesworth, Medical Superintendent, Sungei Buloh, and Professor J. H. Hale of the University of Malaya were also present.

548. The Congress adopted a number of resolutions proposed by Committees it had appointed to consider certain aspects of leprosy. Amongst these was the resolution of the New Committee on Immunology of which Professor J. H. Hale was a member and which recommended that while noting the progress and reports of the successful use of B.C.G. as an immunizing agent in South America and elsewhere, it recommended further critical and controlled trial work to attempt to establish its value on a more satisfactory scientific basis.

549. Another matter of importance was the resolution of the classification committee which recommended a further modification of classification of cases. This resolution has attempted to reconcile more closely the pathological and clinical aspects, and has emphasized the importance of the large a typical group which lies between the two classical forms of the disease, and has, in fact, suggested that the disease should be regarded not so much as a matter of separate types, but as presenting a range or spectrum stretching between the two extremes seen in pathological and clinical experience The old classifications have long been regarded as unsatisfactory in Malaya where local experience has shown that anything up to 80 per cent of our cases come into the atypical border line group between the two classical forms.

550. In December, Dr. R. G. Cochrane, Medical Secretary of B.E.L.R.A. gave a most interesting lecture to the British Medical Association, Southern Division, on the new classifications and demonstrated the different types with cases chosen from Trafalgar Home.

TRIAL OF B.C.G. AS AN IMMUNIZING AGENT IN LEPROSY

551. Recent work, particularly from South America, has suggested that some degree of cross immunity and acquired resistance may exist between tuberculosis and leprosy, and particularly, co-relates the acquisition of a positive lepromin reaction through a tuberculous infection with a higher degree of resistance to leprosy. It has been shown that a tuberculous infection can give rise to a positive lepromin reaction and that this can occur both by natural infection and by B.C.G. immunization. B.C.G. is in use on a wide scale in various countries, especially in the tropics, including Singapore and Malaya, as a method of control of Tuberculosis. As the scientific basis and statistical accuracy of the most important work on the value of B.C.G. in leprosy cannot be regarded as entirely satisfactory, it was felt that a more accurate and controlled experiment would be of great value in assessing the rightful place of B.C.G. in the control of leprosy and also help to establish the relationship, if any, between tuberculous and leprous immunity. Accordingly, a meeting was called in London on 23rd September, 1953, under the auspices of the British Tuberculosis Association and a number of phthisiologists and leprologists were present. Included amongst these were Professor J. H. Hale, Professor of Bacteriology, University of Malaya, and Dr. R. J. Grove-White, Superintendent of Trafalgar Home and Tuberculosis Specialist of the Colony of Singapore, both of whom were proceeding to the Madrid Congress. This Committee discussed the evidence so far available and considered the possible methods of further assessment of B.C.G. as a prophylactic in leprosy.

552. At the Sixth International Leprosy Congress held in Madrid in October, B.C.G. came up for active consideration in both the immunological and the therapeutic committees and was mentioned in two of the Congress resolutions. It was agreed at the London meeting that the British Tuberculosis Association Research Committee would lend its support and recommend any other interested organization to support a project to carry out a controlled experiment on B.C.G. vaccination of leprosy contacts in Singapore. The apparent size of the problem in Singapore and the distribution of population, and the presence of a B.C.G. team in the Health Service made it appear possible that a controlled experiment which would be statistically satisfactory could be carried out without a very great increase on the present staff.

553. Professor James H. Hale has agreed to lend the resources of his department on the bacteriological side, and the Government Medical Department will be able to produce and trace the cases. The co-operation and help of Dr. B. D. Molesworth of Sungei Buloh, has also been promised and will prove of great value and assistance. After the Congress, discussions took place in Singapore with Professor Lloyd Davies, Professor of Social Medicine, University of Malaya, and Dr. Enid Charles, World Health Organization lecturer in Statistics to the Department of Social Medicine, University of Malaya, who advised on the size and significance of various statistical samples for the proposed experiment.

554. A lepromin testing team went into action in the Trafalgar Home towards the end of the year and tested a sample of some 300 patients in the Home with both tuberculin and lepromin. These results were co-related with the clinical classification of disease. Experience was also gained in biopsy methods and concentration techniques. Next, a small sample of B.C.G. vaccinated tuberculosis contact cases were selected for testing. These were tuberculin and lepromin tested at their routine re-testing six months after vaccination. The tuberculin reaction showed a mantoux conversion rate of 80 per cent but lepromin testing showed only 10 per cent conversion rates. This is disappointingly low if the acquisition of a positive lepromin test is to be

regarded as a favourable immunological response as a protection against leprosy. Another series of tests carried out in the tuberculosis wards of Tan Tock Seng Hospital showed only 54 per cent lepromin positive even when the response to one tuberculin unit was 86 per cent 1 T.B. positive. It is proposed that larger series will be carried out to confirm these figures.

555. These preliminary investigations which will be extended during 1954 have thrown considerable doubts on the value and practicability of a controlled experiment on leprosy contacts using B.C.G. as an active immunnising agent to promote lepromin sensitivity, but the accurate information on contacts, whether or not associated with B.C.G. vaccination, would be of great interest and scientific value. But in view of the fact that studies elsewhere indicate that this procedure is not always exempt from adverse complications of varying degree it is felt that in Singapore any experiment of this nature must, first of all, be harmless and that any technique which might prove dangerous to the subjects of the trial should not be countenanced.

CHAPTER TWENTY-TWO

OTHER SPECIAL DEPARTMENTS

DIVISION OF RADIOLOGY

556. The expansion of the volume of work, which has been experienced every year since the war, continued during 1953.

SECTION OF DIAGNOSTIC RADIOLOGY

557. The number of patients examined radiographically was 79,391, an increase of 28 per cent over the 1952 figure. In addition 9,200 cases were examined by fluoroscopy at Tan Tock Seng Hospital, and an unspecified number at the General Hospital. The corresponding figure for 1952 was 7,084.

1938	6,000 cases
1947	17,562 cases
1949	30,069 cases
1951	52,199 cases
1953	79,391 cases

Installations—General Hospital

558. Two new high-power units have been installed and are giving excellent service. These provide facilities for thoroughly up-to-date work, including high-voltage radiography, planigraphy, and 'spot-film' work. The new sub-department in the new Out-patient block has been completed and brought into use. The re-organization of the sub-department in the Orthopædic Department has been postponed as structural alterations have not yet been made.

Tan Tock Seng Hospital and Kandang Kerbau Hospital

559. All the equipment mentioned in last year's Report has been installed, and is giving excellent service. There has been a steady increase in the volume of obstetric and gynæcological radiology.

Woodbridge Hospital

560. The new Department is complete.

Staff

561. During the year there was a considerable improvement in the numerical strength of the staff. By the year's end the diagnostic department had the services of four qualified radiologists. Dr. Lim Kee Loo returned from study on 9th December, 1953 having successfully completed in less than eighteen months a course of study for the D.M.R.(D) which normally requires two academic years.

562. The number of radiographers also showed a welcome improvement. At the end of the year there were four members of the Society of Radiographers on the permanent staff, and four others working on month-to-month agreements (two of them part-time). The radiographic work was shared by locally-trained X-ray assistants chosen from among the staff of hospital assistants. At the end of the year three of these were working, one was in training,

and three more were studying in the United Kingdom having been granted Scholarships to enable them to study for the M.S.R.

563. The following diagnostic X-ray facilities were available in Singapore Hospitals:—

General Hospital

564.—(i) Room A: A new modern 500 m.a. unit fully equipped for all ordinary radio-diagnostic work. Special equipment for radioscopy, gastro-intestinal examinations and planigraphy.

(ii) Room B: One high-power and two low-power units for routine radiography especially of traumatic cases.

(iii) Room C: A new 500 m.a. unit for special examinations with a special table for head radiography.

(iv) Orthopædic Department: Two low-power units are at present in use. The installation of a medium-power unit has been postponed as necessary structural alterations have not yet been made.

(v) Out-patient Department: A low-power unit is in use for the investigation of cases of suspected injury.

Tan Tock Seng Hospital

565.—(i) Room A: One photo-fluorographic unit. One new 500 m.a. unit with Potter-Bucky couch and upright Potter-Bucky stand.

(ii) Room B: New medium-power unit with facilities for planigraphy and for fluoroscopy and serial radiography.

(iii) In addition facilities for fluoroscopic examinations are provided in the Chest Clinic and at Mandalay Road Hospital.

Kandang Kerbau Hospital

566. A new 400 m.a. unit complete with Potter-Bucky couch and upright Potter-Bucky stand.

567. A low-power mobile unit.

Woodbridge Hospital

568. Installation of a mobile unit is complete. The old 200 m.a. unit transferred from the General Hospital was found to have a faulty transformer which could not be repaired. A replacement has been ordered, but installation is delayed.

SECTION OF RADIOTHERAPY

569. Miss Jean K. Ritchie, M.R.C.P., D.M.R.(T), arrived from the United Kingdom in June, and for the first time this section came under the control of a full-time radiotherapist. The staff was further strengthened in September by the appointment of Miss E. Giow Eng Nio, M.SC., as physicist. These appointments have resulted in an increase in the volume of work undertaken and an improvement in its quality.

570. A new 250 k.v. therapy unit was purchased and was in course of being installed at the end of the year. The purchase of additional apparatus for which funds were voted was postponed as there was no space to house it.

571. The extra accommodation which will be provided when the new Theatre Block is built is particularly badly needed by the Radiotherapy Section. As action is proceeding already in this direction the additional accommodation required will be available in the near future.

POLICE SERVICES

572. The health of the families of the rank and file on the whole has been satisfactory.

573. A total of 552 in-patients were treated in the Police Hospital as compared with 560 in the previous year. Total attendances at out-patient clinics were as follows:—

———	New Cases	Repetitions	Total Attendances
Hill Street, Families Clinic ..	2,055	13,184	15,239
Police Training School	2,870	6,278	9,148
Total ..	4,925	19,462	24,387

574. There were 56 Police wives confined in barracks as compared with 85 in 1952.

575. During the year 56 births took place in the barracks of which 31 were males and 25 females.

576. It will be noted that while the Medical Officer, Police, looks after the Police Hospital and all men of the rank and file, the Lady Medical Officer, Police, is concerned with all Police families of the rank and file.

577. The Islands of Pulau Tekong, Pulau Ubin and Tanjong Kling have all been visited by the Lady Medical Officer, Police.

TEACHING AND RESEARCH

578. Lectures to medical students were given as in former years. Owing to their crowded curriculum students took little advantage of the standing invitation to attend normal reporting sessions for individual teaching.

579. The investigation of the problem of lympho-opithelioma, which is by far the commonest type of malignant disease seen in the Radiotherapy Department was continued in collaboration with the University Departments of Surgery and Pathology. These tumours are remarkably sensitive to radiation, but recurrence almost always takes place and a method of treatment which offers a reasonably high proportion of permanent cures is still being sought On the diagnostic side a small research project initiated by the University Department of Physiology was nearing completion at the end of the year. The work promises to throw light on the existence of blood reservoirs in the human lungs and liver.

580. Senior Radiologist ... Dr. D. R. McPherson, B.SC., M.B., CH.B. (Glas.), D.M.R.E., D.T.M. & H.

581. Radiologists ... Dr. F. Y. Khoo, M.B. B.S. (Hong Kong).
Dr. Lim Kee Loo, L.M.S. (S'pore), D.R.M.(D).

582. Radiotherapist ... Dr. Jean K. Ritchie, M.R.C.P., D.M.R.(T).

APPENDIX *A*

GENERAL HOSPITAL

SUMMARY OF WORK IN 1953 IN THE DIAGNOSTIC SECTION

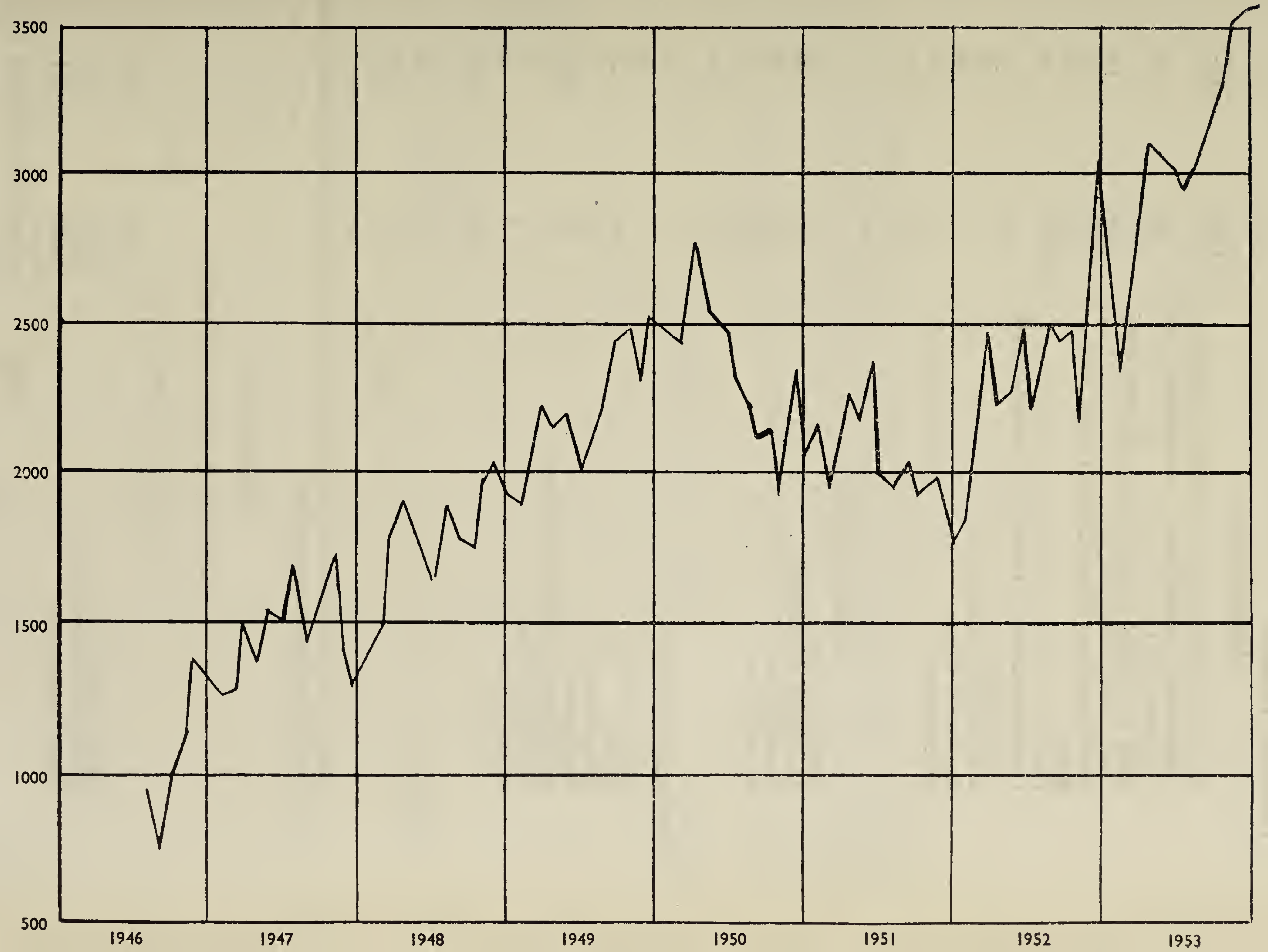
	1953	*1952*
Chest	17,064	14,307
Bronchography	87	93
Gastro-intestinal Tract (Barium Meals and Enemas)	1,440	1,288
Renal Tract	1,213	862
Gall Bladder	269	226
Heart	226	293
Pregnancy including Pelvimetry	254	471
Salpingography	116	4
Encephalography	15	39
Bone and Joints (*a*) Injury	11,629	6,558
(*b*) Pathology	4,321	5,206
Sinuses	971	760
Teeth	35	22
Others	135	311
Tomographs	8	15
Total ..	37,767	30,455
Average per month ..	3,147	2,538

APPENDIX *B*

GENERAL HOSPITAL

GRAPH SHOWING POST-WAR INCREASE IN THE WORK OF THE DIAGNOSTIC SECTION

Number of cases per month



APPENDIX *C*

GENERAL HOSPITAL

SUMMARY OF WORK OF RADIOTHERAPY SECTION IN 1953

	1953	*1952*
DEEP X-RAY THERAPY		
Malignant Disease		
Post Nasal Carcinoma (Lympho-epithelioma, Squamous Epithelioma, transitional cell growths, etc.)	90	63
Head and Neck: Scalp, Parotid, Thyroid, Pituitary, Antrum and Larynx	17	10
Oral Carcinoma (Tonsil, Cheek, Tongue, etc.)	7	7
Breast	16	11
Uterus	9	9
Lymphoblastomas: Hodgkin's disease, Leukæmia, etc.	23	22
Skin and Soft Tissues	3	5
Sarcoma of Bone	2	2
Miscellaneous	31	29
	198	158
Benign Conditions		
Osteoclastoma	4	1
Ankylosing Spondulitis	18	28
Hæmangiomas	10	10
Miscellaneous	20	5
	52	44
SUPERFICIAL THERAPY		
Rodent Ulcers	6	10
Keloids	48	23
Hæmangiomas	2	1
Papillomata	23	22
Skin Diseases (Eczema, Acne, etc.)	62	67
Hyperthyroidism	1	2
Miscellaneous	7	4
	149	129
RADIUM	13	20
Total	412	351

Thirteen patients were treated with radium—either in the form of interstitial implants or as surface radiation using moulds.

APPENDIX *D*

TAN TOCK SENG HOSPITAL

SUMMARY OF WORK IN 1953

	1953	*1952*
Chest (Large films)	30,139	23,727
Chest (Photofluorography)	7,271	7,347
Other examinations	2,692	533
Total	40,102	31,607
Average per month	3,341	2,634
Fluoroscopic screen examinations of Chest—		
X-ray Department	250	184
T.B. Clinic	9,200	6,900

APPENDIX *E*

KANDANG KERBAU HOSPITAL

SUMMARY OF WORK DONE. (DEPARTMENT OPENED ON 18-5-1953)

Chest	875
Abdomen	800
Pelvimetry	288
Intervenous Pyelography	301
Spine	45
Skull	75
Pelvis	40
Extremity	150
Total	2,574

INFECTIOUS DISEASE

584. Middleton Hospital, the only institution specifically reserved for infectious disease in the Colony apart from the Quarantine Station, admitted 2,049 cases to its beds during the year as compared to 1,796 in 1952. No case of plague, cholera or small-pox was observed for the sixth consecutive year.

585. The following table gives an indication of the principal conditions dealt with over the period:—

Diseases	Remaining 31–12–52	Admitted	Dis-charged	Died	Remaining 31–12–53
Chicken-pox	13	836	833	..	16
Measles	..	117	112	2	3
Diphtheria	21	332	282	47	24
Diphtheria Contact Carriers	1	47	45	..	3
Meningococcal-Meningitis	..	4	3	1	..
Acute Anterior Poliomyelitis	40	41	42	5	34
T.B. Meningitis	..	3	2	1	..
Enteric Group of Fevers	9	94	95	2	6
Typhoid carrier observations	..	76	76	..	..
Tropical Typhus	..	4	4	..	..
Amœbic Dysentery	1	134	129	2	4
Bacillary Dysentery	..	25	25	..	..
Clinical Dysentery	1	16	16	1	..
Diarrhœa and Enteritis	1	39	38	..	2
Acute Tonsillitis	2	83	81	..	4
Mumps	..	9	9	..	..
Erysipelas	..	1	1	..	..
Whooping Cough	..	7	7	..	..
General diseases admitted	..	75	62	11	2
Observations	1	106	105	..	2
Total	90	2,049	1,967	72	100

Enteric Fever

586. Ninety-one cases of typhoid fever were admitted during the year. With nine cases remaining on the 31st December, 1952, a total of 100 cases were treated. Two cases died, a case fatality of 2 per cent, a new low record. Table 2 below shows the number of admissions and deaths by months. There was no epidemic manifestation.

——	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cases	9	5	5	5	9	12	15	2	3	9	10	7	91
Died	..	..	..	..	..	..	2	..	..	..	..	..	2

Diphtheria

587. During 1953, 332 cases of diphtheria were admitted as compared to 427 in 1951. Of these 47 died, a case fatality of 14.1 per cent. Sixteen died within twenty-four hours after admission. Tracheotomy was performed on 103 cases or 31 per cent of the total admissions, 1 in every 3 cases admitted. Of these only 20 died after operation, i.e. 19.4 per cent. Although all these figures are a considerable improvement on those for 1952 the position in regard to this disease still gives cause for serious perturbation in view of the fact that the proper immunization of children can wipe it out. This procedure is available in both urban and rural infant and child welfare centres but the two inoculations required is the difficulty as parents will not bring their children for the second does in many instances. In several Rural Areas this procedure and the taking of blood for syphilis contact lead to rumours of sterility measures and action against the high birth rate. These resulted in a serious dropping off of attendances for some three months until intensive propaganda had overcome the evil. In consequence an all out Colony propaganda drive against diphtheria is to be instituted early in the new year. The co-operation of the Public Relations division of Government has proved very helpful in the rural propaganda field over the year.

588. Eighty-four of the 332 cases recorded came from the Rural Areas (some 25 per cent).

Types of Cases	Admissions	Deaths
Laryngeal and Tracheal	106	40
Nasopharyngeal	57	7
Faucial or Tonsillar	163	[illegible]
Nasal	6	..
Total ..	332	47

ADMISSIONS AND DEATH BY RACE

Race	Admissions	Deaths
Europeans	1	..
Eurasians	4	..
Indians	10	3
Chinese	301	43
Malays	15	1
Others	1	..
Total	332	47

ADMISSIONS AND DEATHS BY AGE GROUPS

Age	Admissions		Deaths	
0 – 1 year	17	245 (73.8%)	7	44 (93.6%)
1 – 2 years	41		6	
2 – 3 ,,	61		8	
3 – 4 ,,	56		10	
4 – 5 ,,	34		8	
5 – 6 ,,	36		5	
6 – 7 ,,	23	87 (26.2%)	1	3 (6.4%)
7 – 8 ,,	12		1	
8 – 9 ,,	14		1	
9 – 10 ,,	8		..	
10 – 15 ,,	23		..	
15 – 20 ,,	4		..	
Above 20 years	3		..	
Total	332		47	

ADMISSIONS AND DEATHS BY MONTHS

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cases	40	36	33	23	19	20	22	23	27	19	30	40	332
Died	4	5	3	2	3	..	3	8	5	1	6	7	47

589. Following a case of diphtheria among the 150 children in Mount Erskine Social Welfare Home all the children were Schick tested. The results were as follows:—

Groups	MALES			FEMALES		
	Total tested	Schick positive	Schick negative	Total tested	Schick positive	Schick negative
5 Years	1	0	1	2	1	1
6 "	7	4	3	3	0	3
7 "	24	9	15	25	9	16
8 "	11	2	9	6	3	3
9 "	5	2	3	6	2	4
10 "	13	3	10	8	2	6
11 "	8	1	7	10	3	7
12 "	9	0	9	7	2	5
13 "	4	0	4	1	0	1
Total ..	82	21	61	68	22	46

590. Out of 150 children tested, 43 were Schick positive (28.7 per cent). All the children tested were five years and over. The results showed a high level of immunity at this age level. The high incidence of diphtheria is of course in children in the age groups below six years. 73.8 per cent admissions to the hospital are in the under six age groups.

Tropical Typhus

591. Three cases of Scrub typhus (OXK type) and one case of Urban typhus (0x19 type) were treated.

Measles

592. Of 117 cases treated only two died from broncho-pneumonia.

Dysentery

Dysentery	*Cases*	*Deaths*
Amœbic	134	2
Bacillary	25	..
Clinical	16	1
Total ..	175	3

593. Of the twenty-five cases of bacillary dysentery, twenty were type Flexner and five type Sonne.

594. Although 175 cases were diagnosed as dysentery, 78 cases of simple diarrhœa with no pathogenic organisms isolated and 14 of ascariasis were observed.

595. *Acute Anterior Poliomyelitis*

ADMISSIONS BY MONTHS

——	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cases	2	1	4	4	3	2	12	1	4	1	1	6	41
Died	..	..	1	1	..	..	..	1	..	..	1	1	5

AGE GROUP, SEX DISTRIBUTION AND TYPES OF CASES OF POLIOMYELITIS

Age		0–1 year		1–2 years		2–5 years		5–10 years		10–15 years		15–20 years		20–30 years		30–40 years		Total	
Sex		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Paralytic ..	C.	4	5	7	..	6	6	5	..	1	1	1	..	3	1	..	..	27	13
	D.	..	..	..	..	1	..	1	..	..	1	..	..	1	1	..	..	3	2
Non-paralytic ..	C.	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
	D.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	C.	4	5	7	1	6	6	5	..	1	1	1	..	3	1	..	..	27	14
	D.	..	..	..	..	1	..	1	..	..	1	..	..	1	1	..	..	3	2

Race	Admissions		Deaths	
	Male	Female	Male	Female
Europeans	2	1	1	1
Eurasians	..	..	..	..
Indians	2	2	..	..
Chinese	21	10	2	1
Malays	2	1	..	..
Others	..	..	..	..
Total	27	14	3	2
Grand Total	41		5	

596. A total of forty-one cases were admitted with five deaths. Two bulbar cases were put into the mechanical respirators but both died.

597. A daily average of thirty-five in-patients were receiving physiotherapy treatment.

598. The Infectious Diseases Hospital continued to be under the dual control of Government and City Council.

599. Medical Superintendent: Dr. Ng See Yook, L.M.S., D.P.H.

MENTAL DISEASE

600. During the year the most significant happening was the strike of hospital attendants. This occurred on 30th January, 1953 and lasted some six days. To carry on the essential work of the hospital, the Acting Medical Superintendent, Dr. B. F. Home, discharged on leave, with the Visitor's consent, some 400 patients who, although not completely well, were considered suitable for a short stay with their relatives. The staff was replaced by volunteers from other hospitals, the services, voluntary organizations and the public. Apart from the interruption of specialized treatments neither the patients nor the hospital suffered to any extent as a result of the strike action.

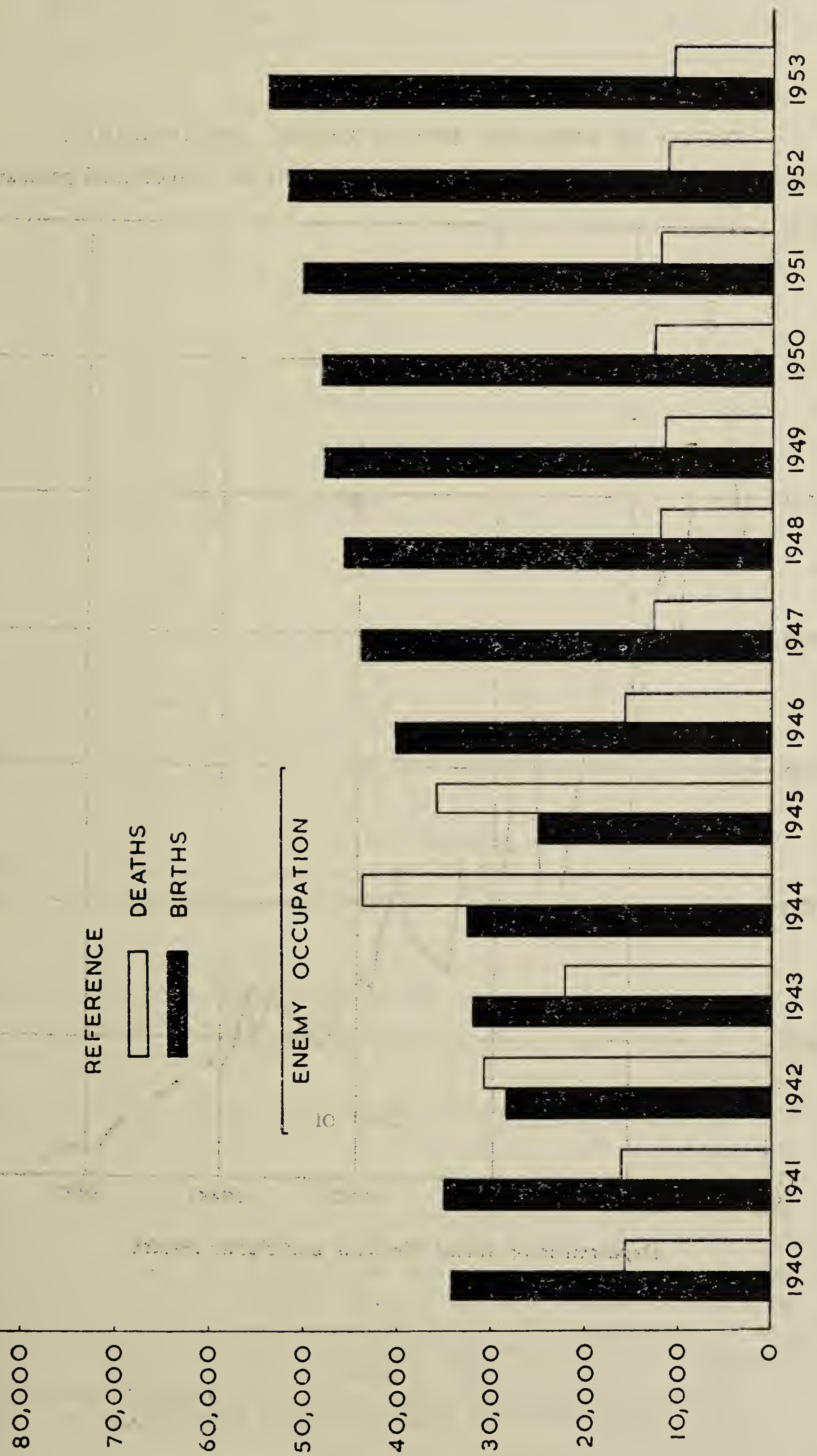
601. One outcome of the special discharge of 400 patients is shown in the overall discharge rate for the year. On the figures shown in the returns the discharge rate was about 80 per cent but if the special discharge is not considered the overall rate would be about 50 per cent which is more in keeping with the rate obtained in other years.

602. Of those discharged on account of the strike a great many have returned to complete their treatment.

603. The total number of resident patients at the end of the year was 1,810 and this is the first time over the post-war period that the 1,800 beds this institution is designed to hold in comfort has been exceeded although over 2,000 was recorded before the war. So additional accommodation cannot be long delayed as an annual increase is to be expected with the rapid growth in Singapore's population. The female in-patients increased from 690 to 723, the males from 1,043 to 1,087 over the year.

604. At least two new wards will soon be required and the special prison block recommended by the 1948 Prisons Enquiry Commission for criminal lunatics should be completed at an early date.

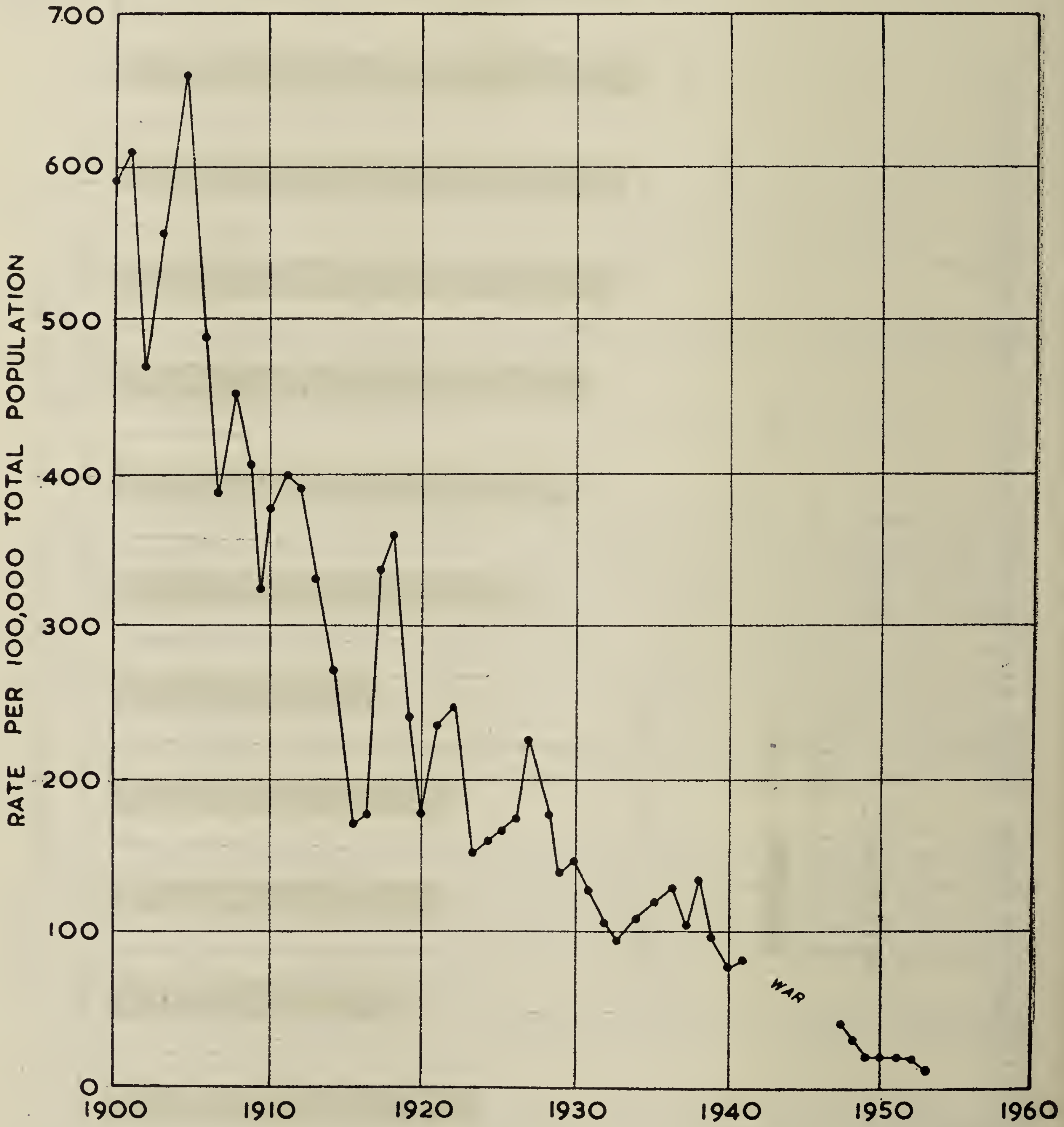
DIAGRAM TO SHOW TOTAL BIRTHS AND DEATHS FOR PERIOD 1940-1953



Department of Social Medicine and Public Health

TREND OF BERI-BERI DEATH RATES: 1900 ONWARDS

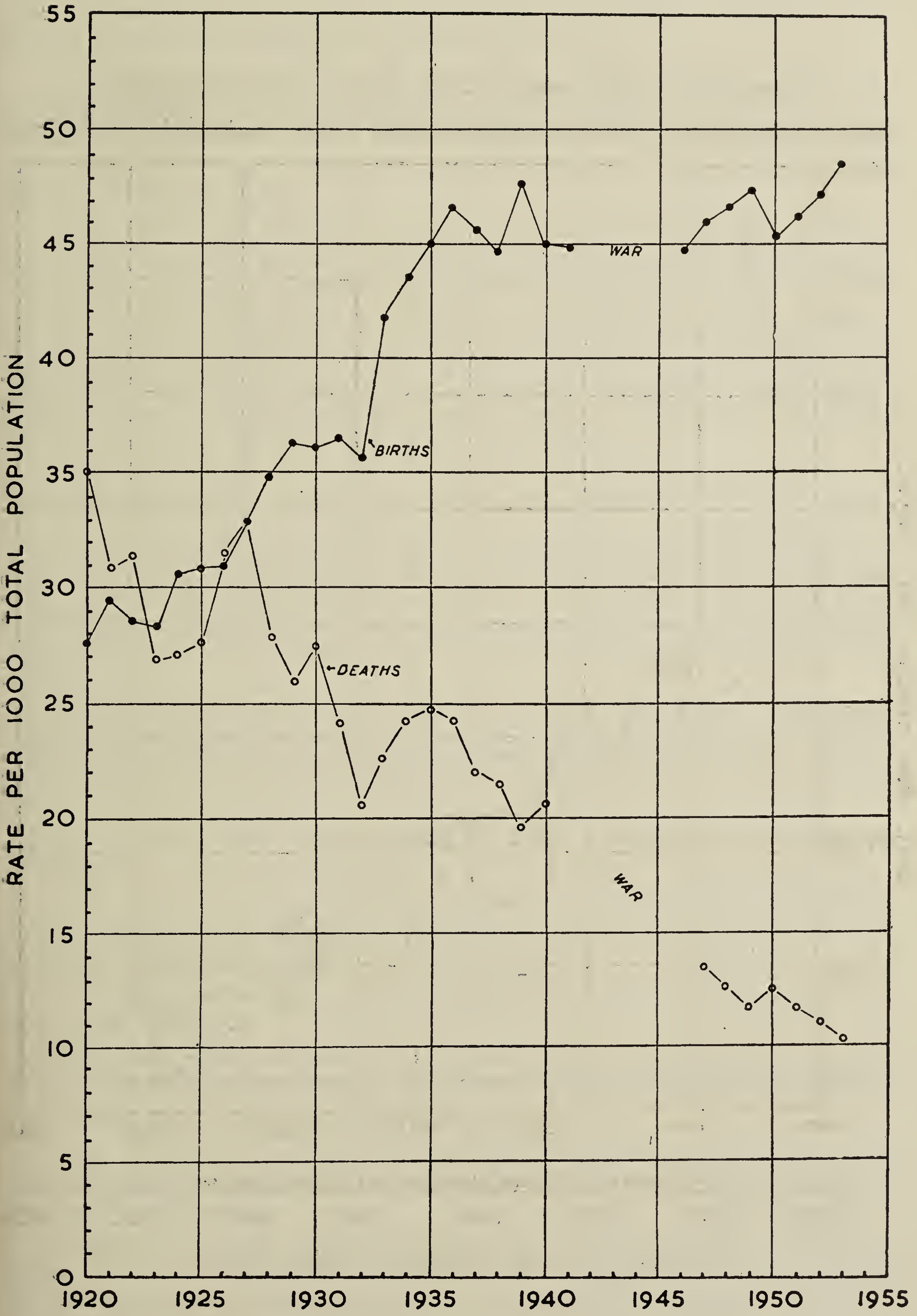
(Rates are the number of deaths reported from beri-beri per 100,000 total population)



Department of Social Medicine and Public Health

TREND OF CRUDE BIRTH AND DEATH RATES: 1920 ONWARDS

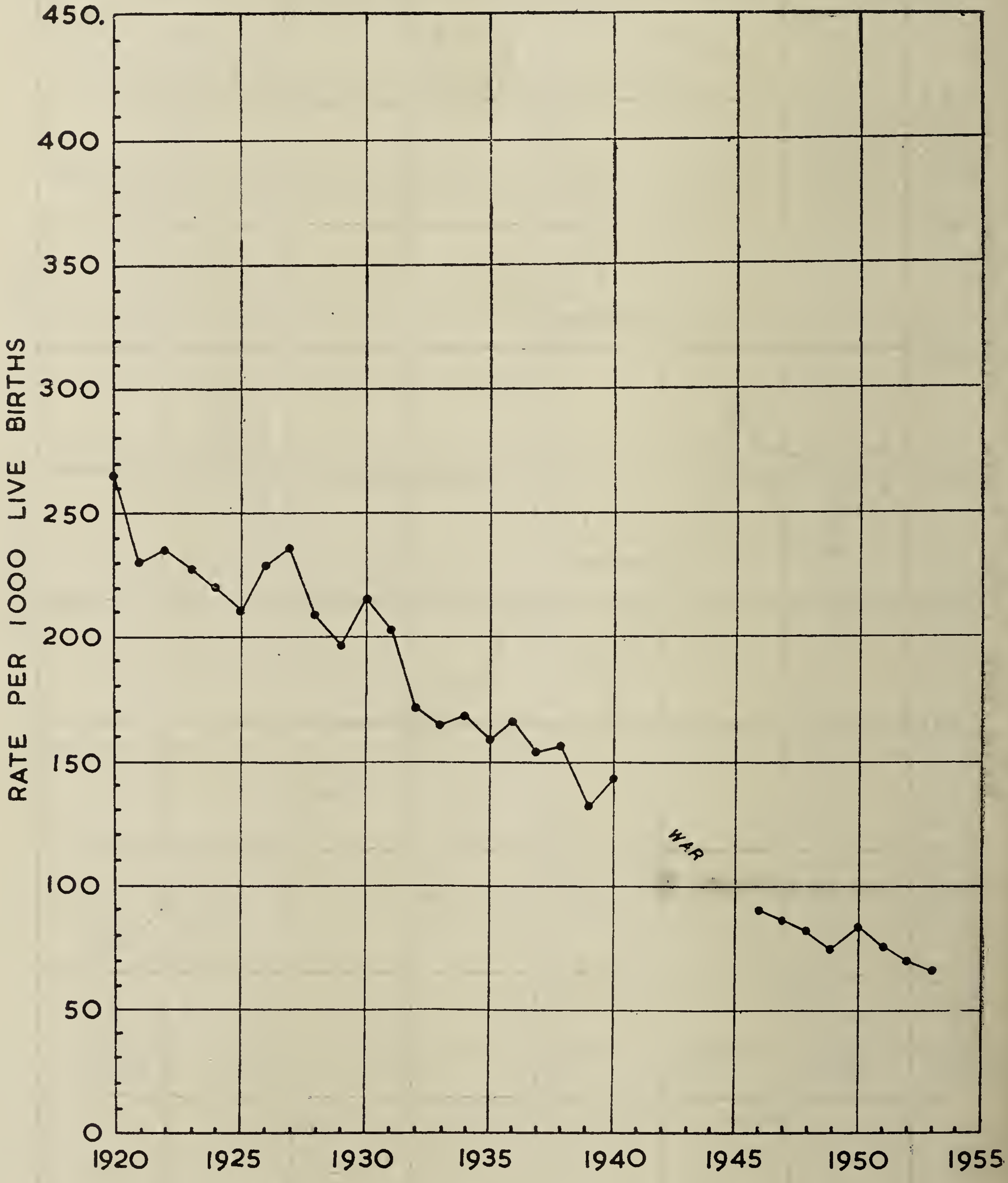
(Rates are the number of births reported per 1,000 total population:
Rates are the number of deaths reported per 1,000 total population)



Department of Social Medicine and Public Health

TREND OF INFANT MORTALITY RATES: 1920 ONWARDS

(Rates are the number of deaths reported under one year at age per 1,000 live births)



Department of Social Medicine and Public Health

605. Clinically, the outstanding event of the year was the establishment of the Psychiatric Out-patients Department at the General Hospital in May. This became possible with the appointment of Dr. E. C. Winslow to the Assistant Medical Superintendent thus releasing the Medical Superintendent for the purpose of establishing and running the clinic.

606. The Clinic has proved to be most popular with the staff of the General Hospital, general practitioners and the public and its success is confirmatory evidence that such a unit has long been required. At present only one session is held per week but it will be necessary to provide further facilities as demand requires.

607. The total number of patients examined during the eight months of the Clinic's existence was 311. Of these 150 were women and 161 were men. The weekly average of patients seen was 9.14 persons.

608. A most significant point was the large number of persons (adult and children) who were referred on account of mental deficiency. This group was the second largest and comprised 18 per cent of the total examined. The need for special accommodation for these patients is apparent as at present there is no special place to which they can be sent.

609. In order that the Clinic may flower to full usefulness a psychiatric in-patient department at the General Hospital is required.

610. Farm lands and productions at the mental institution suffered as a result of the strike, but, even so, about 2/3 of all vegetables consumed in the latter part of the year were home produced. The object is two-fold, firstly rehabilitation of patients and secondly to help cut hospital expenditure. Unfortunately, considerable loss was occasioned due to outside theft and wilful damage.

611. Hospital coconut trees were let out to contract, the contractor to supply the kitchens with free nuts as well as to pay a fixed sum to Government. This is a big saving on other years as formerly most of the nuts were lost.

612. Cut flowers were provided for other Government Hospitals and functions.

613. Treatment followed the usual pattern with a full time insulin shock therapy unit, and electro-convulsant therapy. Other forms of treatment continued to be in use.

614. Psychosurgery was carried out by the Professor of Surgery on behalf of the hospital.

615. Occupational therapy continued to play a large part in the rehabilitation of patients but was gravely handicapped by lack of accommodation and trained male and female psychotherapists.

616. A sale of patients' work was held in November and about $1,000 work of basketry, needlework, paper flowers, woven and wooden goods, etc. were sold to the public.

617. The female sewing room undertook work for other hospitals and made a total of 840 articles. Altogether this unit made 4,818 new articles, an increase on the previous year and it repaired 2,367 pieces. The female Occupational Therapy department also made 994 new articles.

618. The male occupational unit repaired 637 articles and made 728 new articles out of rattan, wood, wool, cord and paper.

619. The male tailoring department made 6,571 new articles and repaired 23,911 units. The work of both departments is of considerable importance as it helps to rehabilitate patients and saves money.

620. Medico-legal activity continued throughout the year, expert evidence being given in seventeen cases, thirteen of which were in the Supreme Court.

621. To facilitate the psychiatric examination of persons accused of serious crime it was arranged by the Attorney-General that the Medical Superintendent should be informed as soon as such a case was committed to the Remand Prison, and that thereafter he should examine the accused as soon as possible. This scheme works well and saves considerable time, previously wasted, in travelling to and fro on the part of either the accused or the psychiatrist.

622. In the matter of Juvenile Delinquency it was arranged with the Magistrate in charge of the Juvenile Court that he could refer any case to the psychiatrist either at Woodbridge Hospital or at the Psychiatric Out-patient Department, General Hospital. So far only one true delinquent has been referred. All the others were mental defectives who required admission to a proper institution rather than 'child guidance' proper.

623. A double X-ray division has been completed and is expected to be ready for action in the near future. A male nurse with previous war-time experience as a radiographer was sent for a course of instruction under the supervision of the radiologist at the General Hospital. The division, when completed, will be able to serve not only Woodbridge Hospital but other smaller Government units in the neighbourhood.

624. The Laboratory continued to perform its essential services, and a total of 10,405 examinations of various kinds were carried out.

625. The Dental Clinic treated a total of 635 cases and the Chief Dental Officer carried out a survey of all the patients with a view to extending the dental service from purely conservative work to supplying dentures, caps, etc.

626. In 1953, the position of Woodbridge Hospital as a teaching centre was improved. In addition to the normal instruction given to the final year medical students it is now necessary to supply facilities for post-graduates sitting for the D.P.H. of the University of Malaya. Lectures were also given, on behalf of the Royal Sanitary Institute, to student sanitary officers.

627. Four examining bodies recognized the hospital as a suitable institution for the preliminary instruction of medical officers wishing to proceed to the higher Diploma of Psychological Medicine. The examining bodies in question are:—

1. The Examining Board in England of the Royal College of Physicians, London, and the Royal College of Surgeons, England.
2. The Examining Board in Ireland of the Royal College of Physicians and Surgeons, Ireland.
3. The National University of Ireland.
4. The University of Melbourne, Australia.

628. As far as is known Woodbridge Hospital is the only neuropsychiatric hospital so recognised in the Far East.

629. In 1953 the daily cost of patients' diets was as follows:—

	$ c.
First class	3 80
Second class	2 40
Third class	1 02

630. A new electric fish fryer was installed in the kitchens and expedites the cooking of food in deep fat. New ranges were put on order but had not arrived by the end of the year.

631. Vitamin fortified rice has been in daily use as a therapeutic and preventive measure.

632. The Annual Patients' Sports Day was well attended, the event was a success and much appreciated by the patients. This year it was held on Coronation Day to mark the event.

Psychiatric Out-patient Department, General Hospital

633. A much needed and long overdue out-patient department was established at the General Hospital early in the year for the benefit of those suffering from psychological illness. There was no possibility at this stage of carrying out physical treatment, either as an out-patient or as an in-patient procedure: all that could be done was to make a diagnosis and a disposal of the patient. A considerable amount of minor psychotherapy was indicated however. It is hoped in the immediate future to provide in-patient facilities at the General Hospital for this purpose under the progress now taking place under the Medical Plan with a small bedded unit for some ten women and twelve men with essential ancillary services for physical treatments, interviewing, teaching, intelligence and psychological testing, group therapy, drama therapy and discussion groups.

634. The Clinic has proved to be increasingly popular. The total number of patients examined so far is 311. Of these 150 were women and 161 were men.

Referring Sources

635. The majority of the patients were referred by the General Hospital, either from the wards or from out-patient divisions, the largest single source being the Psychiatric Clinic itself. This is accounted for by the fact that many of these patients were revisits for psychotherapy and other available outdoor treatment. The Local Prison referred thirty accused persons for examination. In November this supply more or less ceased as a Prison Psychiatric Service was established. The cases referred by Social Welfare were all young and were all mental defective persons.

Diagnoses

636. The largest entity was that of the Schizophrenic Reaction. This is in conformity with psychiatric experience in other parts of South-East Asia where this type of reaction is found more often than the Manic-Depressive Reaction. Not all these persons were schizophrenics, but their presenting illness at first examination was of that nature and justified a provisional diagnosis of schizophrenic reaction.

637. The second largest group consisted of the mental defective. These people were of all ages but were predominantly juniors. Many of them were sent originally by schools and courts to other out-patient clinics because of difficulty in learning or because of minor delinquency. The proper disposal for these persons would have been admission to an institution for mental defectives but such a place has not become available so far, nor has an Ordinance been passed to enable them to be fully controlled. It is emphasised that the fifty-six persons seen in this connection can only be a fraction of the total number of defectives in Singapore and that these are the worst. There are many who would benefit by instruction in a suitable institution or in special

schools for the backward. There are over 200 mental defective persons lodged in Woodbridge Hospital already, but mental defectives and the insane should not be mixed.

638. The Psychoneurotic group, the third group in number would in all probability be very much larger if the real nature of its illness was more readily recognized in Singapore. Many of these patients are treated elsewhere and a large number appear to spend their time in going to various unqualified persons and invoking a large variety of spells and charms. Often they only attend a psychiatrist after they have tried everything else and their symptoms have been well and truly fixed.

639. In suitable cases it is far better to treat such patients in an out-patient department than to admit them to hospital.

Juvenile Delinquents

640. Only one patient was a real delinquent. Others were referred for behaviour disorders.

Age Groups

641. The greatest number fell between the ages of twenty-one to thirty years, and 59.48 per cent of the total were between eleven and thirty years of age. This is sufficient evidence that the brunt of mental illness falls on the young. It is an established fact that mental illness causes a greater wastage of money, time and manpower than any other form of sickness. It is essential that every effort be made to prevent the occurrence of mental ill-health and to ensure prompt and adequate treatment in the early stages, when a cure can be expected, and not after years of chronicity.

Disposals

642. By reason of the absence of any treatment facilities elsewhere in Singapore 47.2 per cent of the patients were admitted to Woodbridge Hospital for observation and treatment. In many cases this was the correct disposal but a number could have been treated in the wards of a general hospital.

Race

643. The distribution by race followed the general proportions of the various races comprising the population of Singapore.

MEDICO-LEGAL

Supreme Court

644. Thirteen visits were made to the Supreme Court by the Consultant Psychiatrist to give expert advice. Most of the cases were alleged murder.

Police Courts

645. Four visits were paid to Police Courts to give expert evidence. In addition medical officers of the hospital were called to various lower courts and the Coroner's Court to give non-expert evidence regarding former patients of the hospital.

Prisons

646. Six visits were paid to the Prisons for the purpose of seeing accused persons on remand. These visits do not represent the total specialist psychiatric service provided for the Prisons as many persons are sent for special examination either to Woodbridge Hospital or the Psychiatric Out-patient Department, General Hospital.

Juvenile Court

647. Consulations were held between the Magistrate and the Consultant Psychiatrist on the subject of juvenile delinquency and the providing of facilities for psychiatric opinion on selected cases. Arrangements were made whereby the Hon. Magistrate could refer any case, by appointment, for special interview at Woodbridge Hospital or, to the Psychiatric Out-patient Division at the General Hospital. This service works quite well but there is not a large demand for psychiatric opinion on delinquent children. As stated above, most of the juvenile delinquents are mental defectives requiring segregation and special instruction rather than psychotherapy and child guidance.

Treatment

648. Active treatment continued throughout the year with considerable success.

649. The two insulin shock therapy wards, of fifteen beds each, were fully occupied. A total of 100 patients received deep insulin therapy with gratifying results. Patients undergoing this form of treatment were predominantly schizophrenics.

650. Unfortunately there is still a tendency on the part of the public to keep their sick at home for prolonged periods prior to bringing them for treatment. It is well known medically that the sooner adequate treatment is applied in mental illness the better will be the result.

651. Electro-convulsant therapy and carbon dioxide therapy were applied in suitable cases and continued to be of great value.

652. Leucotomies were carried out on three patients by the Professor of Surgery. Of these patients one has been discharged to the care of her relatives.

FEMALE PATIENTS BY NATIONALITIES REMAINING AT THE END OF THE YEAR 1953

Chinese	653
Malay	24
Indian	35
Bengali	1
Eurasian	7
European	3
Total ..	723
Paying	27
Free	696
Total ..	723

——	Living inside	Living outside	Total
FEMALES:—			
Principal Attendant	..	1	1
Hospital Attendants, Special Grade ..	7	3	10
Hospital Attendants	65	58	123
Probation Hospital Attendants	16	15	31
Servants of Nursing Staff	2	1	3
Sewing Woman	1	..	1
Total ..	91	78	169

FEMALE PATIENTS WHO WERE ADMITTED AND DISCHARGED, ABSCONDED AND DIED DURING 1953.

Admitted as Certified Patients	279
Admitted as Voluntary Patients	94
Admitted as On Remand Patients	8
Admitted as Lunatic Criminal Patients	Nil
Number of Patients remaining at 1953	723
Number of Certified Patients Discharged	162
Number of Certified Patients Absconded	Nil
Number of Certified Patients Died	14
Number of Voluntary Patients Discharged	21
Number of Voluntary Patients Died	Nil
Number of Voluntary Patients Absconded	Nil
Number of Remand Patients Discharged to Court	2
Number of Remand Patients became Certified under C.P.C.	5
Number of Remand Patients Absconded	Nil
Number of Remand Patients Died	1
Total C.P.C. Patients	25
Number of Criminal Lunatic Patients return to prison	Nil
Number of Criminal Lunatic Patients Died	1
Number of Criminal Lunatic Patients Absconded	Nil

Those Resident	*No. of Staff Male*
Hospital Attendants	138
Probation Hospital Attendants	6
Gate-Porters	2
Telephone Operators	4
Driver	1
Total	151

Those Non-resident	*No. of Staff Male*
Hospital Attendants	166
Probation Hospital Attendants	53
Gate-Porters	6
Telephone Operator	..
Driver	1
Total	226

MALE PATIENTS BY NATIONALITIES REMAINING AT THE END OF THE YEAR 1953

Chinese	849
Malay	109
Indian	100
Bengali	13
Eurasian	12
European	4
Total	1,087
Paying	50
Free	1,037
Total	1,087

MALE PATIENTS WHO WERE ADMITTED AND DISCHARGED, ABSCONDED AND DIED DURING 1953

Admitted as Certified Patients	586
Admitted as Voluntary Patients	97
Admitted as On Remand Patients	72
Admitted as Lunatic Criminal Patients	3
No. of Patients remaining at 1953	1,087
No. of Certified Patients Discharged	599
No. of Certified Patients Absconded	17
No. of Certified Patients Died	69
No. of Voluntary Patients Discharged	85
No. of Voluntary Patients Died	3
No. of Voluntary Patients Absconded	1
No. of Remand Patients Discharged to Court	30
No. of Remand Patients became Certified under C.P.C.	45
No. of Remand Patients Absconded	Nil
No. of Remand Patients Died	Nil
No. of Criminal Lunatic Patients returned to Prison	1
No. of Criminal Lunatic Patients Died	Nil
No. of Criminal Lunatic Patients Absconded	Nil

PATHOLOGY DIVISION

653. The Senior Pathologist, Dr. C. Subrahmanyam, was in charge of the division and continued to act as Head of the Department of Pathology, University of Malaya, in addition throughout the year.

654. When the Blood Transfusion Service, which was born and grew up as a part of the Pathology Division moved out of it to a more spacious and up-to-date new building in October much needed space was freed for an expansion in the work of the division.

655. The work of the division includes:—

(*a*) autopsies (H. M. Coroner and hospital cases) at the General, Tan Tock Seng and Kandang Kerbau Hospitals;

(*b*) histological examinations of biopsy and autopsy specimens from the Government hospitals, clinics, dispensaries and private practitioners;

(*c*) bacteriological investigations of specimens from Government hospitals, clinics, dispensaries and private practitioners;

(*d*) serological tests of blood and cerebro-spinal fluids from hospitals, clinics, dispensaries and private practitioners;

(*e*) preparations of T.A.B. cholera and autogenous vaccines for the use of Government hospitals, clinics, dispensaries and private practitioners, maintenance of a museum of specimens of pathological and medico-legal interest;

(*f*) the carrying out of Friedman tests of pregnancy, maintenance of stock cultures of bacteria; and

(*g*) photography.

656. It is to be noted that the work carried out is not representative of Singapore as a whole as similar investigations are made at the City Laboratories, and large numbers of clinico-pathological, biological, and hæmatological investigations are carried out in the clinical laboratories of the individual hospitals.

Teaching

657. As was the case in 1952 the major part of the teaching of pathology to medical and dental students in the University of Malaya had to be undertaken by members of the division. The posts of Professor of Pathology and three senior appointments have not yet been filled. The number of students attending during the year was 74 (Medical 57 and Dental 17).

658. The teaching of Forensic Medicine was carried out by the senior assistant (Dr. L. S. da Silva). Forty-eight students attended the course.

TOTAL NUMBER OF YEARLY INVESTIGATIONS

——	1950	1951	1952	1953
1. Post-mortems	1,706	1,876	1,889	2,329
2. Histological examinations ..	3,353	3,260	4,673	6,203
3. Bacteriological examinations ..	10,247	10,854	13,764	14,250
4. Serology	36,607	40,421	38,097	45,810
Total ..	51,913	56,411	58,423	68,592
Post-mortems of H.M. Coroners cases ..	831	849	966	874

659. The above figures show the steady increase in the volume of work undertaken by the department during the past four years. As in previous years the increasing volume of work has been a great handicap to the officers in the department in undertaking any research, opportunities for which do exist. Nevertheless interesting articles were contributed to the Proceedings of the Alumni Association by the following:—

(i) Dr. C. Subrahmanyam ...	Incidence of Malignant Disease in Singapore (March). A case of co-existent Seminoma and Teratoma (December).
(ii) Dr. L. S. da Silva ...	Appendicitis in Infants (June). Corynebacterium Diphtheria (September).
(iii) Dr. K. Shanmugaratnam	Ascariasis with hæmorrhagic Pancreatitis (March). Occluding thrombus in left auricle in mitral stenosis (June).

Post-mortem Examinations

660. The total number was 2,329, an increase of 440 on the 1952 figure (1,889). The number of autopsies on Coroners cases was 874, 38 per cent of the total. The corresponding figures for 1952 were 966 and 52 per cent, respectively.

Most of the medico-legal autopsies are now done by one of the Assistant Pathologists. In the 1954 estimate provision has been made for another Assistant Pathologist whose main duties will be medico-legal autopsies.

Age, Sex and Race Incidence of Autopsies on all Deaths
(Coroner's and Ward Cases)

Age	CHINESE		INDIANS		MALAYS		OTHERS		TOTAL		GRAND TOTAL
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year ..	492	400	14	11	1	2	2	2	509	415	924
1 — 10 years ..	166	167	6	6	5	2	3	0	180	175	355
11 — 20 years ..	56	29	4	4	2	1	..	..	62	34	96
21 — 30 years ..	77	33	22	1	9	2	8	1	116	37	153
31 — 40 years ..	98	34	30	6	5	0	2	1	135	41	176
41 — 50 years ..	164	43	38	3	2	1	3	2	207	49	256
51 — 60 years ..	139	29	26	3	6	2	6	1	177	35	212
61 — 70 years ..	65	16	3	4	..	1	3	1	71	22	93
Over 70 years ..	19	4	..	..	..	..	..	..	19	4	23
Total ..	1,276	755	143	38	30	11	27	8	1,476	812	2,288

Still Births ..	6
Autopsies on decomposed corpses ..	35
Grand Total ..	2,329

661. As in previous years the following figures show the benefits of modern preventive and therapautic measures in preventable diseases:—

	1951	*1952*	*1953*
Tuberculosis	154	143	146
Malaria	7	2	3
Beri-beri	19	12	16
Amœbiasis	12	12	13
Bacillary Dysentery	7	7	6
Typhoid	8	4	7
Diphtheria	7	7	5

662. The total number of deaths from violence during the year was 433 as compared with 436 in 1952. Out of these 61 caustic soda poisoning (total deaths from poisoning 77) 53 hanging, 6 strangulation, 65 drowning, 112 vehicle accidents and 3 Penicillin anaphylaxis were recorded.

663. Death from caustic soda poisoning shows an increase of 20 on the 1952 figure (41). Three deaths from penicillin injections are recorded for the first time: all were non-hospital cases. The number of deaths from malignant tumours was 118, the figure for 1952 being 83.

Histology

664. 6,203 sections were examined during the year, an increase of 1,530 on the 1952 figure (4,673). Necropsy sections taken during the year totalled 735. Out of these 272 were completed, leaving a balance of 576. This material is accumulating yearly and unless the University fills the vacant posts and relieves the staff of the department from teaching duties, this yearly accumulation will continue.

Photography

665. A photography and photomicrography unit was developed during the year. and this is under the charge of a senior laboratory assistant who was sent to the United Kingdom for special training in museum methods and

photography. The number of pictures produced during the year was 2,284 out of 574 specimens from 221 cases. Coloured pictures were taken of 60 specimens, and negatives were developed.

Bacteriology

666. 14,250 specimens were investigated during the year as compared with 13,764, an increase of 486 specimens. Animal inoculation and cultural investigation for tuberculous material totalled 114 and 4,376 respectively. Antibiotic tests for M. tuberculosis and other bacteria were done on 608 and 483 specimens respectively. Eight stains of Leptospira were sent to Dr. J. C. Broom of the Wellcome Laboratory, Tropical Medicine, London. One was identified as L. Canicola, one as L. bankinang and six as L. bataviæ.

667. Some strains of Leptospira have been obtained from Dr. Broom and it is now possible to carry out agglutination tests for leptospirosis.

668. 150 strains of stock cultures—N.C.T.C. Oxford and Local—were maintained during the year.

Serology

669. The total number of specimens for serological tests was 45,810, an increase of 7,713 on the 1952 figure (38,097).

670. Since the re-occupation in 1946 the Kahn Test was the only one carried out for the diagnosis of syphilis or yaws. In August this year the V.D.R.L. (Venereal Disease Research Laboratory) test was commenced as a routine (sera only) and was found to be an excellent *screen* test. Besides this, the Kahn and Wassermann tests are also carried out on selected cases showing any evidence of so called *positivity*.

671. No V.D.R.L. test is done on cerebro-spinal fluids, but Kahn and Wassermann tests only.

672. Antigens for the three tests are standard antigens supplied by the Burroughs and Wellcome Laboratories.

673. The difficulty in running both an expanding Government Pathology Division and a University teaching unit with seven officers of whom only five can be said to be sufficiently experienced is obvious.

674. Senior Pathologist: Dr. C. Subrahmanayam, L.M.S. (Singapore).

675. Chief Assistant: Dr. L. S. da Silva, L.M.S. (Singapore)

BLOOD TRANSFUSION SERVICE

General

676. The Blood Transfusion Service moved into a new specially designed Centre in August 1953, a very great improvement on any previous accommodation available for the purpose as this was merely an improvisation and temporary. The division now functions as an independent unit and serves all the hospitals in Singapore on the United Kingdom basis of a regional centre.

677. The Centre contains waiting and refreshment rooms for blood donors, offices, a room in which nine donors can be bled at a time, a laboratory, assembling and cleaning rooms and an air-conditioned room in which sterile solutions are made.

678. Blood and saline giving sets are developed and issued to all hospitals and are returned for cleaning and assembling after use. The sets are now uniform with those used generally in the United Kingdom, and are packed and

sterilised in tin boxes. Some 7,403 blood and 7,319 saline sets were issued during the year. All component parts except filters are used repeatedly. The cleaning room is equipped with an electrode boiler which produces steam to run an autoclave, a boiling tank, drying cupboard, and a manesty still. All glassware is cleaned with a detergent, dymax, instead of acid.

679. The laboratory is most up to date and is fully equipped with refrigerated blood storage cabinets and other essential apparatus, such as centrifiges, incubators, a deep freeze cabinet for sera, etc. All blood group investigations are done here as well as the matching of blood for any patient requiring transfusion. The blood is sent out as required in insulated boxes.

680. A small bank is also kept at Kandang Kerbau Maternity Hospital, and it is hoped that eventually there will be a laboratory space available there, as much of the work carried out is for patients in that hospital.

681. The average amount of blood handled per month this year was 543 flasks as compared with 377 last year and 300 (monthly) in 1951. Details covering donors and recipients, and an analysis of the distribution is shown in the attached list.

Staff

682. The Staff consists of two doctors, two supervisors (one for the office and one technical), two clerks and eight technicians. A twenty-four hour service is maintained, a technician being on duty at all times out of office hours, with a doctor or supervisor 'on call'. Towards the end of the year, two more technicians were recruited. A Chinese donor organiser was appointed in October to do publicity and propaganda work among the non English-speaking Chinese, with a view to obtaining more donors from the Chinese community.

Donors

683. As the demand for blood transfusion has increased so it has been necessary to find more and more new donors. While many of our regular donors have continued their valuable support some 200 new ones are needed every month.

684. The European community still provides the greatest number, with Service men and women playing a prominent part.

685. While the total number of Asians, particularly Chinese, has increased considerably, a most satisfactory recent trend, the numbers still fail to keep pace with the increased demand.

686. During the year 68 earned Silver medals for giving blood 10 times. Of these 36 were Europeans and Eurasians, 24 Chinese, 7 Indians and 1 Filipino. Gold medals for 20 donations were presented to four people, 3 Europeans and 1 Chinese.

687. The response from relatives and friends of patients continued to be poor, but that is not surprising considering that most of the blood goes to the poorest and least well nourished patients. However more relatives could help and an effort is being made by the donor organiser to enlist their support.

688. The policy of not paying donors, and not charging for the blood used for transfusion, continues.

Publicity

689. The English and Vernacular Press, Radio Malaya, Rediffusion and Public Relation Office have continued to help all through the year by publicity in the form of reports, photographs, articles, appeals and weekly publication of Blood Bank balances.

690. In the latter half of the year the Chinese daily press and weekly and monthly magazines have published feature articles and photographs. The Mandarin-speaking Radio Doctor has brought up the subject of Blood Transfusion several times, and news-interviews and appeals have been made in various dialects on Radio Malaya and Rediffusion.

691. In April an Exhibition was held at the Victoria Memorial Hall in conjunction with World Health Week, people being invited to give their blood there during the evenings and on Sundays. The response was disappointing.

692. In July a more spectacular publicity Campaign and an exhibition were organised in conjunction with Safety First Week, and with the help of the Public Relations Department. Many commercial firms gave advertising space in the newspapers, Radio Malaya and Rediffusion broadcast slogans, appeals and features and Shaw Brothers showed a film 'Emergency Call' at the Pavilion Cinema. At a stand at the Safety First Week Exhibition at the Victoria Memorial Hall, photographs, charts and posters were displayed and hundreds of pamphlets in four languages were distributed and films shown. The giving and taking of blood was demonstrated and Donor Sessions were held daily including Saturdays and Sundays. The response in this case was good, but steady propaganda as a long term measure is the only answer in this respect.

693. Clubs, associations, adult classes and various organizations have been approached and appealed to from time to time with latterly a concentration on Chinese associations.

Technical Work

694. The new laboratory with the air-conditioned room and assembling and cleaning rooms have greatly facilitated the smooth running of the technical side with a much increased output lately.

695. 6,317 transfusions were actually given, but a far larger number of blood grouping and matchings were done as many doctors, particularly surgeons and gynæcologists, like to have blood ready matched in case it should be needed.

696. Rhesus tests were carried out on 4,237 Chinese patients and donors. Eight were Rh. negative i.e. .19 per cent.

697. Some thirty-nine cases of jaundice in young babies were investigated seriologically. Only two cases of true hæmolytic disease of the new born due to a Rh. incompatibility in Chinese were found.

698. Four more Chinese patients were found with Rh. antibodies in their serum, three women in response to pregnancy and one man in response to repeated transfusions. We have now recorded six cases of Rh. antibodies in Chinese. One Indian and two English babies suffering from hæmolytic disease of the new born were diagnosed and transfused successfully.

699. The Staff of the Blood Group Reference Laboratory in London have continued to help in the elucidation of our problems, and this is greatly appreciated.

700. Very few reports of reactions to blood transfusion have been made recently and it is thought that the more adequate facilities provided in the new Centre account largely for the reduction in pyrogenic reactions.

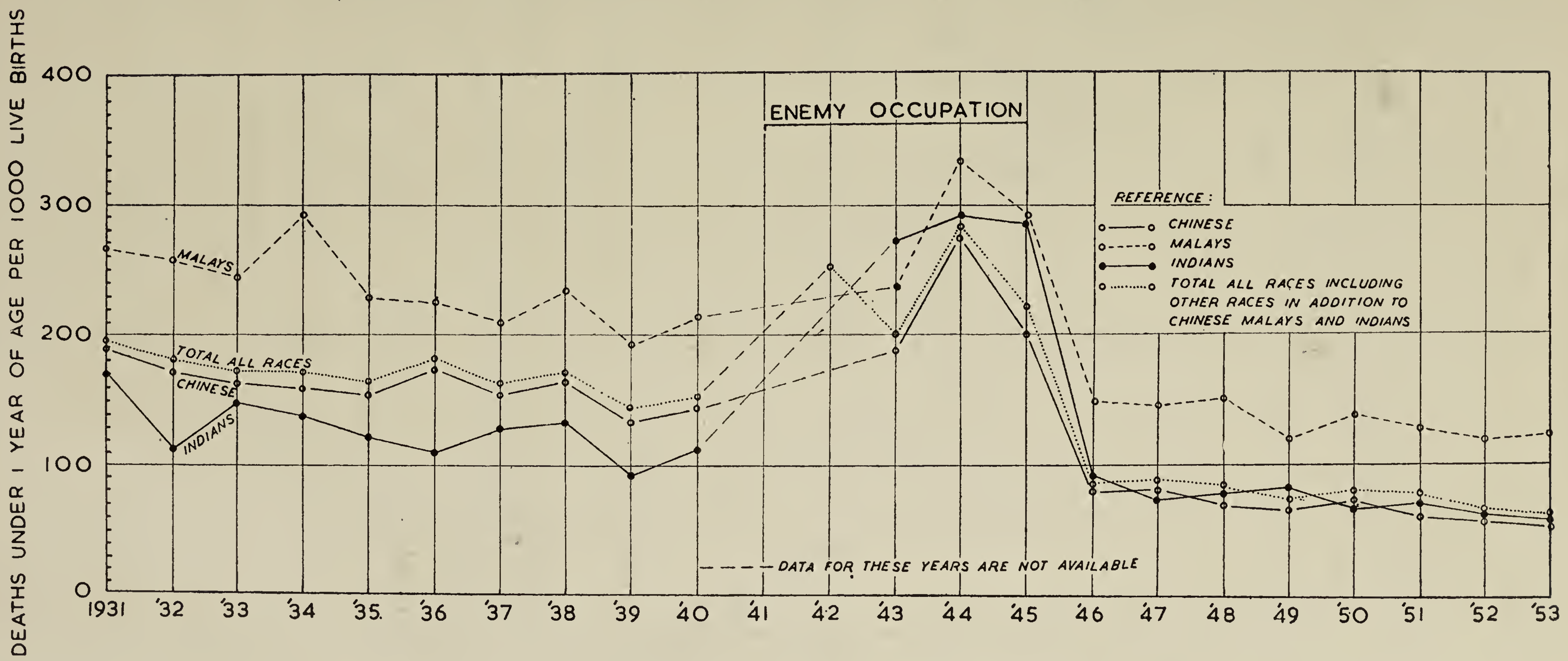
701. Blood Transfusion Officers:

(i) Dr. (Mrs.) M. M. H. Gibson-Hill, M.R.C.S. (England), L.R.C.P. (London).

(ii) Dr. R. C. H. Wells, B.SC. (Hons.), M.B.B.S., M.R.C.P. (London).

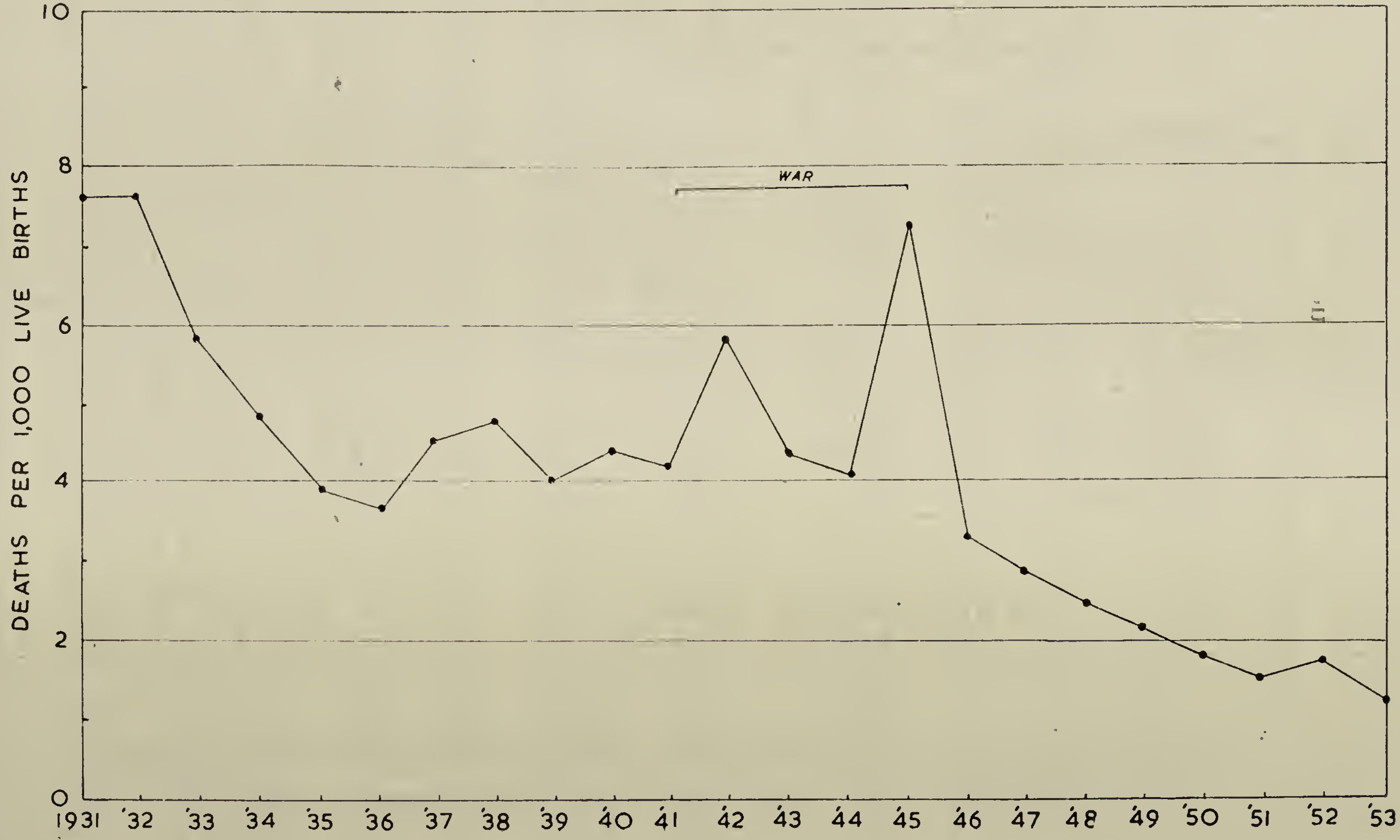
INFANT MORTALITY RATES BY RACE: 1931 ONWARDS

(Rates are the number of deaths reported under one year of age per 1,000 live births)



TREND OF MATERNAL MORTALITY RATES: 1931 ONWARDS

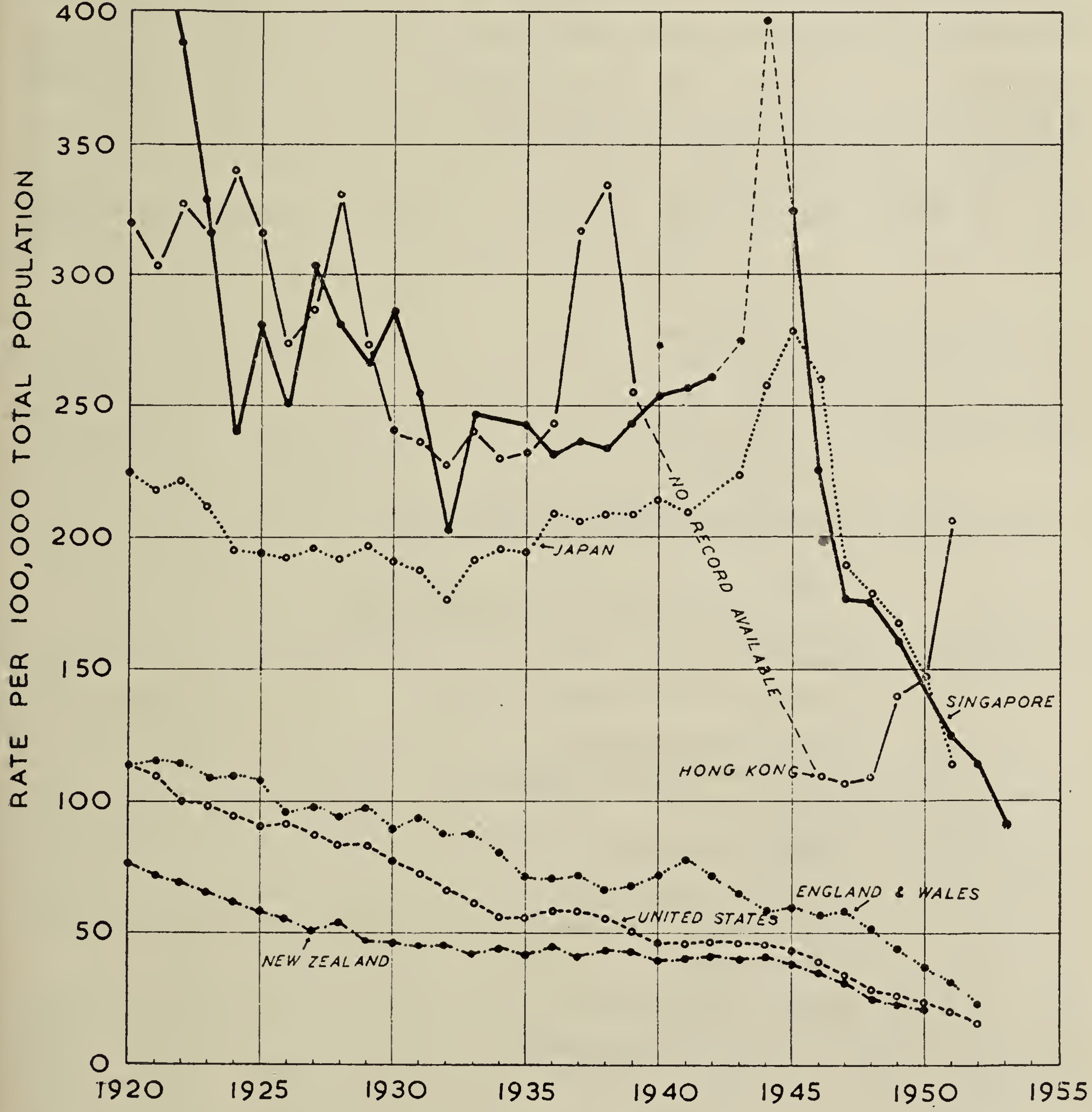
(Rates are the number of deaths reported from puerperal causes per 1,000 live births)



TREND OF TUBERCULOSIS DEATH RATES: 1920 ONWARDS

(Singapore and certain other countries)

(Rates are the number of deaths reported from tuberculosis (all forms) per 100,000 total population)



Donors	Male	Female	Total No.	Recipients	Male	Female	Total No.
European ..	2,646	230	2,876	European ..	80	48	128
Chinese ..	1,683	89	1,772	Chinese ..	1,977	2,974	4,951
Indian ..	688	7	695	Indian ..	293	447	740
Malay ..	591	11	602	Malay ..	105	257	362
Eurasian ..	473	44	519	Eurasian ..	38	66	104
Others ..	48	3	51	Others ..	11	21	32
Total ..	6,129	386	6,515	Total ..	2,504	3,813	6,317

Service Personnel	1,991
Relatives:	
Taken	431
Offered and rejected	90
New donors	3,069
Voluntary donors offered and rejected	170

ANALYSIS OF DISTRIBUTION

General Hospital	3,306
Kandang Kerbau Maternity Hospital	2,737
Tan Tock Seng Hospital	32
Youngberg Memorial Hospital ..	172
Trafalgar Home	2
Middleton Hospital	3
Mandalay Hospital	8
Asian Hospital, Naval Base ..	2
R.A.F. Changi	38
British Military Hospital	14
St. Andrew's Mission Hospital ..	3
Total ..	6,317

Year	*Donors*	*Recipients*
1947	966	725
1949	2,946	2,530
1951	3,695	3,119
1952	4,551	4,404
1953	6,515	6,317

PRISON HOSPITALS

(*a*) *Changi*

702. The medical work at Changi Prison was carried on by a resident, but part-time, Medical Officer, who visited the prison early every morning. In addition he was on a twenty-four hour call for emergency cases among the prisoners, staff and their families. A Hospital Assistant was on twenty-four hour call daily in addition.

703. The Hospital Assistants made two daily rounds of the whole prison and treated minor cases; the rest being referred to the Medical Officer.

704. The general standard of health and sanitation in the prison was highly satisfactory throughout the year.

705. The prison hospital admitted a total of 123 patients during the year (as against 210 in the previous year), the daily average being 12. The majority of these were tuberculosis patients. A total of 35 tuberculosis cases were admitted and treated during the year, the present number being 12. The general improvement in their health was marked.

706. There was no death in the prison during the year.

707. The total number of out-patients (among the prisoners) treated was 35,639, compared to 44,623 in 1952; this gave an average of 118 out-patients per day. Of these the Medical Officer saw an average of 15 per day. The majority of conditions met with were of a minor nature—colds and coughs, skin diseases and passing fevers and minor traumata.

708. The Dental Surgeon visited the prison once a week, and treated a total of 263 cases—4 dentures, 21 cementings and 238 extractions.

709. Eleven prisoners were supplied with spectacles.

710. The rations supplied to the prisoners were wholesome and fresh, and the standard of cooking and cleanliness in the kitchen most satisfactory.

(*b*) *Pearl's Hill*

711. The standards of health and cleanliness in the Prison were of a high order throughout the year. There were far fewer cases of serious illness in the opium addicts admitted than previously. No epidemic of any kind occurred. Scabies continued to be rife owing to its presence in large numbers of new admissions. Sixty-nine cases of Pulmonary tuberculosis, one of chicken pox, thirty-four of venereal disease and nine of leprosy were noted.

712. The Medical Officer treated an average of 34.3 out-patients a day. The total number of new cases was 2,236, repetitions numbering 10,254. This was an increase over the previous year due mainly to the fact that many opium addicts seek some form of treatment or other for vague aches and pains. Few have any definite illness on examination but 36 were found to be suffering from pulmonary tuberculosis.

713. The average daily number of prisoners in the whole prison was 644, as compared to 793 last year. A total of 1,036 cases were admitted to the Prison Hospital during the year, with an average of 44.96 patients per day.

714. Fifty-five patients were transferred to the General Hospital, sixteen to Woodbridge (Mental) Hospital, two to the Trafalgar (Leprosy) Home, one to the Middleton (Infectious Diseases) Hospital, four to the Kandang Kerbau (Women's Diseases) Hospital and one to the Tan Tock Seng (Tuberculosis) Hospital.

715. Eleven deaths occurred during the year, four in the Prison, two due to pulmonary tuberculosis, one to perforated gastric ulcer with peritonitis, and one to syphilic aortitis. Seven were in transferred cases, six in the General Hospital, and one in the Tan Tock Seng Hospital.

716. The Hospital Assistant vaccinated 4,677 prisoners and inoculated 262. All comers to the Prison are vaccinated as a routine.

717. The out-patient clinic for the treatment of warders and their families was well attended in 1953.

718. 877 opium addicts were brought in during the year, as compared with 1,512 in 1952. Only 27 were females and of them all were Chinese except one Pathan. One was in the age group 21–25, 21 in the group 26–50, and 5 were over 50 years of age. Of the males, 1 was Northern Indian, and the rest Chinese: 6 were of the age group 21–25, 545 were in the age group 26–50, and 299 were over 50 years of age. Percentage of opium addicts to the whole Prison population was 31 per cent. Twenty opium addicts were referred to the Social Welfare Department prior to their release, being specially selected cases who were anxious to be permanently cured of the addiction. The average daily consumption of opium was found to be 4.3 packets. Practically all were smokers, there being few swallowers, but a few combined both swallowing and smoking.

719. The effect of imprisoning these addicts would appear, together with police action in restricting the drug, to have a certain effect on the amounts actually taken, but the number of cures appears to be small. Many, if not nearly all the addicts, appear to have great faith in opium as a healer, rather than as a pain killer. It is considered that withdrawal of the opium on admission has reduced the amount of illness observed on admission very appreciably. Imprisonment of the addicts tends to clear them of the minor ailments which started many of them on the habit. Most have put on weight to a remarkable extent. This applies particularly to those imprisoned for two months or more.

720. The Dental Surgeon visited the prisoners weekly, and treated a total of 644 cases—466 extractions, 277 fillings, 8 dentures.

(*c*) *St. John's Island*

721. The Medical Officer visited the detainees and staff at St. John's Island weekly until it closed on 24th July, 1953. The average number of patients seen per visit was five. The Hospital Assistants treated an average of four patients per day.

722. The Dental Surgeon paid St. John's Island weekly visits where he treated a total of forty-one cases. Of these, twenty were extractions, twenty-eight fillings and *no* dentures.

Government Medical Store

723. The Medical Store division functions as a central supply department for all Government hospitals and clinics with a fully equipped pharmaceutical laboratory for manufacturing work. It is sited on the pre-war Sepoy Lines Golf Course, conveniently near the General Hospital and the docks.

724. The new premises were visited and inspected by the Honourable Mr. C. C. Tan in connection with the opening ceremony of the Out-patients Department and the Blood Transfusion Centre at the General Hospital. Mr. Tan and the other members of the official party were shown the tablet machines and other manufacturing equipment in the laboratories.

725. This new scheme has been in operation for some time now and further improvements have been incorporated during the last few months. The shallow drains along the sides of the godowns proved inadequate and slight flooding was occurring in heavy rainstorms as a result of the catchment from the surrounding hillsides. Deep drains were completed early in the year to deal with this problem. At the same time the laboratory premises were enlarged by the provision of more internal fittings. These included two benches with built-in cupboards and extra shelving for bottle stacking in the containers section.

726. There were again increases in both the volume of stores imported and distributed, and also in the amount of manufacturing work carried out. In the Store Section the annual turnover, i.e. value of stores issued to hospitals, clinics, welfare centres, etc., was $1,630,000. This represents an increase of 13 per cent over the previous year's turnover and an increase of 200 per cent over the figure for the year 1948. The Laboratory Section showed about the same increase in turnover, the net value of manufacturing pharmaceuticals, i.e. the value of raw materials and containers used in production, was $196,800. This represents an increase of 11 per cent over the figure for the previous year and an increase of 300 per cent over the figure for 1948. Thus during the past 5 years the quantity of manufacturing work has quadrupled whilst the turnover of stores has trebled.

Year	STORE SECTION	LABORATORY SECTION
	Turnover—Value of Stores Billed	Output—Value of Manufactured Products
	$	$
1948	623,881	47,805
1949	1,032,564	92,864
1950	1,139,701	107,438
1951	1,184,485	87,646
1952	1,448,831	176,412
1953	1,629,474	196,792

Store Section

727. The bulk buying arrangements through the Crown Agents for the Colonies has worked very satisfactorily and shipments were received regularly. The Crown Agents put our orders out to tender promptly and in most cases stores were shipped without delay, arriving approximately four months from the date of sending the order. 554 Bills of Lading were dealt with during this year. There were forty-six Claims on the shippers, in all cases for breakages in transit or minor short-packings. There were no serious cases of loss or pilferage.

728. The new premises have greatly facilitated the distribution of medical supplies and the stores issuing section, despite the increase of turnover, is staffed by only five seniors and five storemen who prepared hospital orders to the value of nearly $1¾ million worth of goods this year. A heavy expenditure on antobiotics continued to be marked despite the drop in the price

of penicillin packs during the year. The quantities of these drugs used in all hospitals during the year are shown below with the total expenditure on each in the right-hand column: —

———	Total used in 1953	Value
		$
Penicillin	102,600 Mega Units	89,700
Procaine Penicillin	70,700 Mega Units	64,600
Dihydrostreptomycin	142,800 Grammes	99,100
Aureomycin	12,200 Grammes	37,500
Terramycin	3,700 Grammes	11,300
Chloramphenicol	7,650 Grammes	12,500
Cortisone	710 Grammes	19,200

729. The annual expenditure on drugs and chemicals represents about two-thirds of the total purchases made by the division. In the section dealing with stocks other than drugs there were large issues of textiles and bedding in 1953, e.g. 20,000 yards of khaki drill and 9,000 yards of bleached twill sheeting being issued. These large quantities were partly accounted for by the opening of new wards at Woodbridge Hospital and Trafalgar Home, to the issue of uniform materials to Hospital Assistants and to a considerable number of new nurses recruited during the year. The turnover of surgical instruments and ward equipment was steady. The new clinics which were opened by the health branch had to be equipped with some major equipment such as sterilizers which were available from stock.

730. An excellent bound catalogue prepared by the Government Printer was received in January, and copies were distributed to all medical establishments. This volume proved a great help to those ordering stores.

731. Tenders were again called for the supply of X-Ray Films and Medical Gases on a contract basis, and arrangements were made for a separate supply of Oxygen for the General Hospital in 1954. This has now become necessary at this hospital as it is using a lot of oxygen cylinders for the air conditioned Oxygen Tents in both medical and surgical wards. Tender notices were also issued locally for bulk supplies of certain items particularly antibiotics and vitamins, for which favourable quotations had been received. The orders so placed resulted in a saving of several thousand dollars as the local agents are able to offer very competitive prices particularly for dihydrostreptomycin and penicillin. Tenders for alcohol and ether resulted in purchases at advantageous prices by direct import from Australian producers.

Number of Bills of Lading		554
Number of Packages received:	(1) Per freight	2,798
	(2) Per post	1,176
Number of Packages despatched:	(1) Per freight	83
	(2) Per post	58
Gross Mileage of Store Vehicles		24,034
Number of Crown Agents Claims		46
Number of Requisitions or Invoices		4,608
Number of Items in Standard Stock Section		4,480

732. The importing section was kept extremely busy as large orders placed early during the year for Civil Defence stocks began to arrive about August, and all deliveries from the Harbour Board were undertaken by the store transport. The division still has only the three vehicles which were purchased in 1949 to replace B.M.A. army vehicles. At that time the annual turnover of stores was only $1 million, little over half the present volume of stores dealt with. The Civil Defence Department has lent a fourth vehicle which will be essential in order to cope with both normal and Civil Defence Stores.

733. Civil Defence reserve stocks continued to be stored in the old store premises at Maxwell Road. A new godown was however built in the grounds of Woodbridge Hospital and taken over during the last few days of the year for Civil Defence Stocks. This godown will be gradually stocked up with reserve stores.

Financial Section

734. The completion of a Tabular Summary of the Unallocated Stores Account was achieved this year for the first time after careful preparation of figures during the previous year and considerable work by the Financial Assistant and the Record Section staff. This Summary will appear in the Annual Report of the Director of Audit.

735. The value of Stores written-off during the year was approximately $21,000. This is a very low figure in view of the fact that the sum is made up practically entirely of stores which were supplied under the Military Rehabilitation arrangement during 1945 and could not be used for peacetime medical purposes nor could they be sold. Over half of this figure represents Quinine Dihydrochloride Ampoules which were part of the Rehabilitation Medical Equipment Units. No offer was received although they were advertised for disposal and the Crown Agents for the Colonies were also unable to find a customer.

736. The value of stores sold to non-Government Institutions was $95,000, less than 6 per cent of the gross turnover figure. This sum mainly represents supplies to S.A.T.A. and various departments of the University of Malaya. Arrangements for supply of Dangerous Drugs and urgently required medicines to private pharmacies continued but the value involved is very small.

737. The Colonial Secretary's Office convened a Board of Survey which commenced checking in November, but the survey will not be completed until early 1954.

FINANCIAL STATISTICS

	$	c.
Unallocated Stores Purchases Account		
(1) Value of Orders Placed on Crown Agents ...	1,184,190	02
(2) Value of Stores Purchased locally	301,664	72
(3) Value of Stores Purchased from other Countries:—		
India	20,956	99
Australia	13,385	27
Unallocated Stores Recoveries Account		
(1) Total Cost of Stores Billed	1,629,474	38
(2) Total Bills Outstanding	409	33
(3) Payments to U.S. Recoveries Account:—		
(i) by adjustments	1,320,205	17
(ii) by cash for stores	227,877	89
(iii) by cash for freight and handling charges ...	882	21
(4) Payments to Revenue	95,486	56
(5) Surcharge 10% on sales to non-Government Institutions	2,436	65

Government Medical Store Maintenance	$	c.
(1) Total Annual Recurrent Expenditure	22,411	83
(2) Expenditure on Maintenance of Laboratory ...	3,493	08
(3) Total Special Expenditure excluding Salaries ...	5,236	04
Value of Stores Written-off	20,952	86
Value of Stores in Stock at 31st December	1,289,809	36

Laboratory Section

738. As in the Store Section, there was no increase in staff this year. Mr. S. Kanagalingam, Locally qualified pharmacist who was in charge of the sterile preparation section was awarded a Government scholarship to obtain the higher pharmaceutical qualification of Pharmaceutical Chemist Diploma of the Pharmaceutical Society of Great Britain. He left for the United Kingdom on 5th September to commence his scholarship at the Brighton Technical College. His place was taken by one of five pharmacists newly appointed to vacancies in the hospitals following the revision of salary scales for Division II Pharmacists on 20th June, 1953.

739. The laboratory work covers a fairly wide field of pharmaceutical manufacture. The figures given for the various preparations produced in the laboratories during the year are similar to the 1952 statistics but with an overall general increase in quantities.

———	1st Qr. Jan.–March	2nd Qr. April–June	3rd Qr. July–Sept.	4th Qr. Oct.–Dec.	Total 1953
Multidose Injection vials ..	11,715	12,194	7,801	8,125	39,835
Ampoules	14,668	26,401	27,483	34,515	103,067
Transfusion Salines 540 Mil. ..	1,592	1,644	1,843	1,990	7,067
Tablets	4,973,000	3,981,000	3,388,000	3,888,000	16,230,000
Mixtures (Gal.)	552	454	612	714	2,332
Linctus and Syrups (lb.) ..	5,969	6,411	6,560	4,958	23,898
Lotions (Pints)	378	462	162	898	1,900
Tinctures (lb.)	1,334	2,011	1,213	1,439	5,997
Infusions and Extracts (lb.) ..	351	474	240	147	1,172
Emulsions (Pints) ..	696	790	316	608	2,410
Ointments (lb.)	369	1,498	215	797	2,879
Laboratory Stain Solutions (litres)	116	90	131	111	448
Suppositories (No.) ..	Nil	70	250	201	521

740. The exceptional increase in comparison with 1952 production is the figure for tablets manufactured, 16¼ million tablets against 6¾ million last year. This is due to the arrival of the sixteen-punch rotary tablet machine in February and the oscillating granulator which was received shortly afterwards. The new equipment has made possible the manufacture on the premises of more standard tablets with resultant saving of cost to Government. The larger manufacturing programme in the tabletting section did not result in accummulation of appreciable reserve stocks in the store as there have been greatly increased demands from hospitals, out-patients departments and clinics for these standard tablets. For instance, during October, November and December the issues of multiple vitamin tablets to medical establishments reached 750,000 tablets per month. During the same period 200,000 compound Ferrous Sulphate tablets were issued and about the same number for Isoniazid tablets.

741. Despite the increase in output this section only required the transfer of one packer for the additional work, one laboratory assistant and two packers now being employed in the *drys* room. The machinery does most of the work of course. Figures for production of the main tablets manufactured are given below.

LABORATORY PRODUCTION—TABLES 1953

Acetomenaphthone 10 mgm.	21,000
Acid Ascorbic 25 mgm.	818,000
Acid Folic 5 mgm.	42,000
Aminophyllin 0.1 g.	118,000
Aneurin Hyd. 3 mgm.	1,914,000
Aneurin Hyd. 10 mgm.	514,000
Aspirin Gr. 5	204,000
A.P.C.	166,000
Butobarbitone Gr. 1½	55,000
Calcium and Vitamin D.	148,000
Codein Co.	333,000
Codein Phosph. Gr. 1½	105,000
Ephedrine Hyd. Gr. 1½	158,000
Ferrous Sulph. Co.	2,611,000
Ferrous Gluconate	94,000
Isoniazid	2,009,000
Multi-Vitamin	5,845,000
Nicotinamide 50 mgm.	50,000
Propylthiouracil 25 mgm.	20,000
Pyridoxine Hyd. 10. mgm.	55,000
Riboflavine 3 mgm.	103,000
Santonin Gr. 1	53,000
Santonin Co.	44,000
Sulpha. Co. 0.5 grm.	653,000
Stilbœstrol 5 mgm.	79,000
Theobromine and Phenobarb.	83,000
Thiacetazone 25 mgm.	125,000
Vitamin B Complex	314,000
Vitamin B_{12} 10 mcg.	26,000

742. The cost of maintenance of the laboratory at $3,493 is extremely low in comparison with the value of preparations manufactured on laboratory Works Tickets for the year at $196,792. This laboratory is responsible for a great saving in the cost of pharmaceutical supplies each year. The laboratory premises occupied last year were planned to supply the Medical Department services for twenty years and cope with the expansion during the period. This expansion is now taking place. The extensions to the Kandang Kerbau Hospital are in the course of construction and the new theatres and wards at the General Hospital will be built very shortly. The new Out-patients Department at the General Hospital is in operation and dealing with a large number of out-patients each day. It is estimated that these increased facilities will call for a turnover by the Medical Store of twice the value of stores which have been issued during the year under review, and the laboratory output will probably have to treble to meet the requirements of the establishments served. The provision of proper store and laboratory premises has made it possible to meet these requirements.

743. It is estimated that the saving effected by the laboratory and manufactory sections under the new scheme will soon pay for the total cost of the construction of the new premises and the new equipment installed.

744. Superintending Pharmaceutical Chemist: Mr. D. E. Lovett, B.PHARM. (London), PH.C.

745. Pharmaceutical Chemist: Mr. J. S. Robertson, PH.C.

CIVIL MEDICAL DEFENCE

746. The A.D.M.S. (Civil Defence), Dr. W. E. Hutchinson, M.A., M.D., D.P.H., E.D., J.P. reports as follows in this connection:—

(i) In the Report on Civil Medical Defence for 1952 details were given of the Civil Medical Defence Plan which, it was pointed out, fairly closely followed the United Kingdom scheme. The Plan, which calls for the formation of a number of Casualty Hospital Units of 450 beds each, the establishment of First Aid Services and the expansion of the Ancillary Services, e.g., X-Ray, was redrafted during the year, being considerably amplified.

(ii) Opportunity was also taken to revise the schedules of medical staff, stores and equipment which have been drawn up for the Casualty Hospital Units, Static First Aid Posts, Mobile First Aid and other Units. These schedules on which indents for stores and equipment are based, cover a considerable number of items including very expensive items of surgical and other equipment. A too lavish scale may result in unnecessary expenditure while on the other hand it is equally important to ensure that no essential items are omitted.

(iii) The problem of Civil Medical Defence Planning is complicated by the rapid peacetime expansion of the Medical Services under the 10-year Medical Plan. The position with respect to the Medical Services is extremely fluid and improves almost daily. The medical facilities for the public, including a spacious and magnificently equipped Out-patient Department and Blood Transfusion Centre which were opened in the compound of the General Hospital during the year, are rapidly expanding, and immediate plans envisage the building of a series of new surgical theatres and additional wards, not only at the General Hospital, but also at Kandang Kerbau and Tan Tock Seng Hospitals. Moreover the peacetime expansion of the services is not only a question of the construction of buildings and recruitment of additional staff but calls for the provision of medical stores and equipment on a large scale.

(iv) It is impossible to reconcile the peacetime requirements of a hospital, such as the General Hospital with the requirements of a Casualty Hospital in an Emergency. The General Hospital not only provides medical, surgical and specialist services for the public on the Island but is also a teaching hospital for the Faculty of Medicine, University of Malaya. The concentration of services, which is so essential in peacetime if the public is to receive the best available medical attention, is to be avoided under a possible threat of bombing, as experience has shown that concentrations of equipment and skilled staff are most undesirable, and constitute an undue risk. On the other hand, if equipment for example is available for a number of surgical theatres in the General Hospital, it is possible to move and to utilise much of that equipment in the event of an Emergency thus reducing the necessity of creating reserves.

(v) This problem had particular attention during the year, and a Special Sub-Committee, with the Deputy Director of Medical Services as Chairman, was formed to correlate the requirements of the peacetime Medical Plan with those of the Emergency Medical Plan, and to scrutinise the schedules of medical stores and equipment laid down under the latter. The Committee met on several occasions and, while it was found that minor amendments only of the schedules of medical stores and equipment were considered necessary, it was agreed that there was a likelihood of holding excessive stocks of equipment, more particularly surgical and ward accommodation equipment, which might be subject to deterioration and untoward loss. Hitherto the policy has been that items of Civil Defence Medical Stores and Equipment should only be issued on loan in the event of urgency but, in view of the immediate proposals to build and equip surgical theatres and extra ward accommodation, it was decided to recommend that certain items of surgical and accommodation equipment now held should be issued to equip, as far as may be possible, the new theatres and wards. It was further decided that the stockpile of other items including dressings, drugs and chemicals should be maintained.

(vi) In this connection it must be appreciated, as has been pointed out previously, that any expansion of the Hospital Services to deal with casualties is limited by the available medical manpower, that a due balance must be held. It is uneconomical to store expensive equipment if the skill staff to use it may not be available.

(vii) Following the fire at Geylang in July a scheme for civil medical aid in the event of large scale civil disasters was prepared but the details had not been finalised at the end of the year. Many authorities and departments are involved in the co-ordination of such a scheme while precautions are necessary that the scheme is not put into effect unnecessarily. Unless a disaster is on a large scale normal peacetime medical facilities can deal with most eventualities.

(viii) At the end of the year arrangements were well advanced to hold in conjunction with the Civil Defence Commissioner (Col. L. T. Firbank, O.B.E.) a Civil Medical Defence Study. The objects of the study will be to consider the application of the Civil Emergency Medical Scheme on Singapore Island and the implications of Atomic, Biological and Chemical Warfare against Singapore. It is expected that the Study will be attended by the senior officers of the Medical Department and Faculty of Medicine, University of Malaya, while representatives of other Government Departments, Local Authorities and the Armed Services will also be invited to attend.

Singapore Hospital Reserve

(ix) The Singapore Hospital Reserve is a voluntary body formed under the 'Civil Defence—Singapore Hospital Reserve—Formation Rules' 1952. Members of the Reserve will be used in an Emergency to augment the permanent staff of the Medical Department. The Reserve has several Sections: Medical Practitioners, Trained Nurses, Nursing Auxiliaries, Technicians and General Duties personnel.

(x) Recruiting for the Reserve opened towards the end of 1952 and continued throughout 1953, the strength as at 31st December, 1953, being 450. On the whole the response by the public, particularly from women, was disappointing. Five hundred and fifty-seven applications for enrolment were received during the year, but many of these were from men in their early twenties and, though a discretion is given to the Assistant Director of Medical Services (Civil Defence) to enrol men under the age of 30 years, it has only been exercised in respect to an applicant who has had some special qualification or training. There were fifteen resignations during the year.

(xi) Of the 450 members of the Reserve, 288 are Nursing Auxiliaries, the remainder being mainly General Duties personnel, including 91 clerks/storemen and 82 Transport Drivers. Of the 288 Nursing Auxiliaries, 87 are women. It had been hoped to build up the Reserve gradually and that 500 Nursing Auxiliaries might be in training at any one time. The number therefore is far short of the target figure.

(xii) A Nursing Auxiliary is required to obtain the First Aid and Home Nursing Certificates either of the St. John Ambulance Association or the British Red Cross Society and then to undergo eighty hours hospital training. The First Aid and Home Nursing training has been carried out under the auspices of the St. John Ambulance Association. During the year, the Association held seven classes in First Aid and six in Home Nursing for members of the Reserve. At the end of the year, of the 288 Nursing Auxiliaries, 262 were trained in First Aid and 26 were undergoing training. 133 were trained in Home Nursing, 121 were undergoing training and 8 awaited training. Of the 133 who held both the First Aid and Home Nursing Certificates, 123 were undergoing hospital training. at the end of the year and of these 26 had completed their eighty hours hospital training.

(xiii) The appointment of a part-time Training Officer for the Nursing Auxiliaries was approved in September. The duties of this Officer, who is a registered Nurse, are to place the trainees in the hospital wards, to keep in touch with them during their period of training, to ensure liaison with the Hospital Authorities and the Sisters and Staff Nurses in charge of the wards and to give suitable lectures on hospital procedure and other subjects. The hospital ward training has proceeded most satisfactorily, and thanks are due to the Matron, Sisters and Staff Nurses in the General Hospital who have taken a great deal of interest in the training of members of Reserve. During the months September/December, over 4,000 hours were spent by the members in the wards of the General Hospital.

(xiv) Members on completing eighty hours hospital training may either be placed on the 'Supplement List' or if they wish may undergo a further period of forty hours training. An oral examination will be held at the end of this second period, and those who pass the examination will be classified as Nursing Auxiliary 'B'. After further training and a second examination a member may qualify as Nursing Auxiliary 'A'.

(xv) Courses in clerical and stores duties were, also, run during the year. The former was under the charge of Mr. N. H. Greenwood who has taken a very great interest in the Reserve and has voluntarily undertaken the instruction of these classes. The course in stores duties was conducted by Major E. G. Gerrity. In addition, courses in Civil Defence were conducted at the Civil Defence School in Kolam Ayer not only for members of the Hospital Reserve but, also, for members of the permanent medical staff. Seventeen members of the Reserve had completed this course and twenty-five were under training at the end of the year.

(xvi) During the year Government approved the issue of Efficiency Bars to be worn on the Hospital Reserve uniform. The Efficiency Bars are of different colours and will be awarded as follows:—

On completion of eighty hours hospital training	—Green
Nursing Auxiliary 'B'	—Blue
Nursing Auxiliary 'A'	—Red
On completion General Duties Course	—Yellow
On completion Civil Defence Course	—Grey

Medical Stores and Equipment

(xvii) Major E. G. Gerrity, temporary Stores Officer, resigned his appointment in September. It was decided not to fill the post, and the reserve medical stores and equipment reverted to the direct charge of the Superintendent Pharmaceutical Chemist (D. E. Lovett, B.PHARM. (London), PH.C.). The stores are held at the Emergency Medical Store, Maxwell Road, in a Medical Store within a perimeter of Civil Defence Headquarters, at Kolam Ayer, expendable items of drugs and chemicals being held at the Government Medical Store in Silat Road for purposes of turnover. In December a new store of some 4,000 sq. ft., specially built for Medical Civil Defence purposes within the compound of Woodbridge Hospital, was handed over by the Public Works Department.

(xviii) As a result of orders placed during the year, of which details are given below, reserve stores and equipment are either held or on order for four Casualty Hospital Units, eight surgical theatres and fourteen surgical satchels. Equipment for twenty static First Aid Posts and thirty mobile First Aid Units is also held. The equipment is also available for the X-Ray Units, and Clinical Laboratories. In addition the essential items are held to provide for the opening of a second Blood Transfusion Centre if necessary. Provision has been made for additional stores and equipment in the 1954 Estimates including items for maxillo-facial and orthopædic units.

(xix) Items from this equipment are only issued in cases of emergency and a number of blankets and other items were issued to the Social Welfare Department on the occasions of two fire disasters during the year.

Emergency Generators

(xx) The functioning of the Medical Services depends in a very large measure on the electricity supply and the question of emergency generators for the hospitals has been under consideration for some time. Owing to various factors it was not possible to finalise the scheme until late in the year but orders have now been placed for emergency generators for all the static hospitals while special type generators for the X-Ray services are also on order. This emergency generating equipment is so designed that it can be moved as required.

One Million Dollars Medical Stockpile Vote

(xxi) The balance of the $1 million medical stockpile vote was expended during the year. Certain X-Ray accessories, including three complete sets of Mobile Potter Bucky Units, were purchased at a cost of approximately $21,000. A further indent covering all types of dressings, bandages, etc., to the value of over $54,000 was placed and 15,000 First Aid dressings were bought. A number of local indents were placed including mattresses and pillows which were manufactured at the Changi Gaol. At the close of the year the balance remaining was $20,000 and this is being held against contingencies.

Reserve Medical Stores and Equipment

(xxii) A sum of approximately $503,000 was provided in the Estimates and was utilised mainly in ordering surgical and other equipment for the fitting out of three Hospital Units, six Operating Theatres and twelve Surgical Satchels. The bulk of these items was ordered in May, and stores have been coming steadily to hand since August.

(xxiii) An indent was placed for 400 beds and large stocks of blankets, sheetings, etc. costing approximately $150,000. In addition there were some minor local purchases, and at the end of the year the balance was approximately $45,000 which is being held against contingencies.

Blood Transfusion, Plasma Substitute and Equipment

(xxiv) A further 3,000 bottles of human plasma substitute were ordered at a cost of $31,800 making a total stock of 5,000 bottles. In addition indents were placed for the standard component fitments for the construction of 1,000 blood transfusion 'giving sets' and 1,000 blood transfusion 'taking sets'.

Bacteriological Laboratories

(xxv) Items to provide additional clinical laboratory facilities included incubators, centrifuges, ovens, stills, standard bottles and flasks, and routine maintenance equipment such as centrifuge tubes and microscope slides. In addition four kerosene autoclaves, to the standard pattern of those already in service, were ordered.

APPENDICES

APPENDIX *I*

REPORT OF A SELECT COMMITTEE OF THE LEGISLATIVE COUNCIL ON THE MEDICAL PLAN FOR SINGAPORE

Note:—The figures given in the Appendices to this Select Committee's Report bear no relation to present building costs which have considerably increased over the period. In addition the Plan which had been modified by limiting the growth of the General and Kandang Kerbau Hospitals to 800 and 350 beds respectively with further expansion on a new site has been finalised recently by increasing the former to 1,350. The Bedok site being no longer available for the Sanatorium this expansion is planned elsewhere. Teaching requirements and quarters for housemen and post graduate resident staff are receiving full consideration in this planning. This is particularly the case at Kandang Kerbau. At the time this report was finalised in 1954 the Medical Plan was proceeding apace and especially so at Kandang Kerbau and the General Hospital. The modification of the Plan in regard to the Rural Area is explained in the text of the main Report.

1. At a meeting of the Legislative Council held on 18th May, 1948, a Select Committee consisting of the Acting Financial Secretary, Mr. M. J. Namazie, Mr. C. C. Tan, Mr. P. F. de Souza and Mr. Lim Yew Hock was appointed to examine and report to the Legislative Council on 'The Singapore Medical Plan' prepared by Dr. W. J. Vickers, Director of Medical Services, Singapore, and set out in Council Paper No. 4 of 1948.

2. It is observed that the Plan was first placed before the Advisory Council as Council Paper No. 12 of 1947. In this Plan a total capital expenditure of $51,082,000 was envisaged over a period of five years. Additional items amounting to $7,736,000 were marked for consideration if possible. The date of this Plan is 11th February, 1947. It was necessary to review this Plan for two reasons; firstly, the impossibility of providing funds on such a scale over so short a period, and, secondly, the incapacity of the Public Works Department of the Colony to undertake so vast a task in addition to its normal works. In consequence, the Director of Medical Services, with the assistance of a Committee consisting of the Principal of the College of Medicine, the Chief Health Officer, the Chief Medical Officer, the Professor of Surgery, the Professor of Midwifery, Dr. Haridas and Dr. Nicholas, suggested some modifications to the original Plan in February 1948. The original Plan, together with the modifications recommended by that Committee and a note by the Director of Medical Services on how the Plan arose, are all contained in the Council Paper first mentioned, namely, Legislative Council Paper No. 4 of 1948. The actual details of the Plan, arranged as a Ten-year Plan and as a Fifteen-year Plan, are shown in the Schedule on pages 26 and 27 of the Paper.

3. The Committee held meetings on the 7th and 17th of June, the 8th, 22nd and 30th of July, on the 12th August and on 8th September, 1948. The Director of Medical Services (Dr. Vickers) attended the meetings throughout and assisted us greatly with explanations and advice. The Director of Public Works (Mr. Kirk) and the Government Architect (Mr. Cuthbertson, and, later, Mr. Brundle), also attended most of our discussions and provided us at very short notice with numerous sketch-plans and figures; and the Committee wishes to acknowledge with gratitude the very valuable assistance given to us by these Officers. The Committee also paid a visit to the General Hospital and saw every aspect of the work there. This was most valuable to us not only for the practical view it enabled us to take of the particular problems there but also for the knowledge which it enabled us to apply to the consideration of other aspects of the Medical Plan generally. In addition, two members made a special visit to the Venereal Diseases Hospital, and the Chairman was able to give Members first-hand information gained by him in extensive inspection of the Leper Settlement, the Quarantine Station at St. John's Island and the Tan Tock Seng Hospital.

4. The Committee desires to state at once that the Medical Plan is one which, in our opinion, should, subject to the comments and modifications set out in this Report, be accepted. In this connection we wish to emphasise that we decided not to concern ourselves with the question to what extent the Colony can afford to execute this Plan. That is a question which it will be possible to answer only when all the other calls likely to fall upon the Colony during the next few years are known. There are many items in view—the University, Housing, Education and Social Welfare, Changi Air Port, etc.—which will make formidable demands upon the finances of the Colony. It will be necessary for all of them to be fitted into the picture before it can be seen in proper perspective. As regards the Medical Plan, the problem to us took the form of a simple question—Does Singapore need this Plan? And our answer to the question is 'Yes'. We agree with the opinion of the substantive Financial Secretary (Mr. J. D. M. Smith) as expressed in a Minute he wrote on the 29th December, 1947. In that Minute he stated:—

> '......I think that the correct approach to the Plan as a whole is first to discuss medical policy as such and on its merits, without intruding the financial aspect. It is obvious that the Colony can never spend on medical services any more than it can afford to spend at any time on medical services. Therefore, once the main lines of medical policy are settled, the Colony then spends along those lines what it can afford to spend. And the breadth of those main lines of policy, in relation to the lines of policy in other fields, will determine the ratio of expenditure on medical services. The first step, therefore, is examination of the Plan on its merits as a statement of medical policy in the Colony......'

In stating our agreement with these views, we do not, of course, mean to infer that the amount which the Colony can afford to spend on medical (or for that matter other) services is necessarily to be governed by present revenue figures. It may be necessary, and probably will be necessary, to find additional funds to carry out this and other Plans. Some of this may have to be by additional revenue; some from loans. What we mean is that we have considered this Plan independently of financial considerations; we think that we should the better discharge the duties laid upon us by trying to arrive at conclusions as to whether the Plan is in itself a desirable plan of medical policy. The case for the Plan is fully and ably set out in the Council Paper, and we have no intention of trying to add further reasons to those already given. We consider that it is a desirable Plan, and not only desirable but necessary if the Government is to meet its obligations to the people of the Colony.

5. We should like at the outset to refer to one matter which intruded itself upon all our discussions. It is the question of quarters. It was quite clear to us that the question of the provision of quarters for the institutional staff of the Medical Department is one upon which most of the others depend. Until considerably more accommodation is available, extensions and improvements in other directions will be of no avail. The Committee which assisted Dr. Vickers have dealt with this aspect of the problem in paragraph 5 of their Report (Annexure *B* to the Plan). They say:—

> 'Until more staff accommodation has been provided further recruitment and expansion is out of the question. The Committee wishes to bring this fact forcibly to the attention of Government: proper and up-to-date quarters for existing staff is first priority, and must take priority over further hospital expansion.'

We have made a close examination of this aspect of the Plan and have no hesitation in supporting the above opinion. We gather that the housing position of Government servants generally is unsatisfactory. Nevertheless we consider that the problem of accommodating hospital staffs takes priority over any general scheme. We consider, therefore, that medical quarters should be regarded not only as a part of the Medical Plan, but as its most urgent part.

In connection with the question of quarters, the Committee is unanimously of the opinion that a better type of quarters for the lower grades of hospital workers should be provided. We feel strongly that the building of the one-room type of quarters should be discontinued and that quarters with two rooms of somewhat smaller size should be provided in future.

6. We now deal with the individual items shown in the Schedule to the Plan:—

1. BASE MEDICAL STORE, PHARMACY SCHOOL AND ESSENTIAL MANUFACTORY

The purpose of this Store is to safeguard medical stores which arrive in the Colony, to make possible the local manufacture of expensive drugs with an ultimate saving to Government by so doing, and to concentrate the storage and manufacture at one point. We inspected the plans and the proposed site for this Store and approve them. We recommend that this item be included in the Plan. Further investigation has revealed that the building can be built and equipped for about $450,000, which gives a probable saving of $250,000 on the estimate shown in the Schedule to the Plan.

2. LEPER SETTLEMENT

The Committee is in entire agreement with the Director of Medical Services that the accommodation at the Leper Settlement is both inadequate and unsuitable. For these reasons, we consider that the amount of accommodation ought to be considerably increased and that the type of accommodation should be improved by progressively providing semi-detached quarters wherever desirable. Ancillary works in the form of roads, water supply and sewerage should also be provided. We investigated the estimates as far as it was possible for us to do so, and we agree that the estimate of $780,000 is a fair one. The Committee was informed that this item has been entered as one for allocation of funds from the Colonial Welfare and Development Fund, and that it should stand a good chance of being accepted as such. We consider, however, that it is a proper item to be included in the Medical Plan and that, therefore, it should stay in the Plan, irrespective of where the funds come from with which to implement it.

In making the above recommendation, the Committee assumed that the necessary extensions and improvements will be carried out on the present site at Yio Chu Kang. At a late stage in our discussions, however, the Committee was asked to consider a suggestion to remove the Settlement from its present site to one of the neighbouring islands. As no alternative investigations on these lines had been made, and as no information is available as to whether a suitable site could be found or as to what the project would cost if such a site were available, the Committee considered it undesirable to delay this Report for such investigations to be made. Moreover, for various reasons, the Committee considered that the extensions and improvements should be carried out on the present site. In the absence of information, Mr. C. C. Tan wishes to reserve his opinion on this point.

3. GENERAL HOSPITAL

This is the largest and most important item in the Medical Plan, and we are completely satisfied that it is necessary. We visited the hospital and thoroughly examined the proposed improvements and extensions. In the original plan two General Hospitals were envisaged, each to take 1,000 beds. This was to be achieved by modernising the present hospital at a cost of $10,300,000 and by the building of a second hospital at a cost of $21,500,000.

The Committee which assisted the Director of Medical Services early this year, upon reviewing this part of the Plan, recommended that the present General Hospital should be extended to take 1,500 beds to overcome the delay involved in implementing the original scheme. This recommendation was incorporated in the schedule to the Plan as item No. 3 at an estimated cost of $16 millions, whilst a second item (No. 14) provided for one or two District Hospitals at a later date at an estimated cost of $11 millions. These were to provide a further 500 beds. The main lines upon which the extension of the General Hospital is proposed are:—the provision of quarters, a proper out-patient Department and Clinics, an up-to-date Children's Block and a satisfactory Pathological Block.

As stated above, the cost of the proposed improvements and extensions at the General Hospital is shown at $16 millions. We examined the estimates in detail and a breakdown of revised estimates is contained in Appendix '*A*' to this Report. It will be seen that two-thirds of the estimates of expenditure are accountable to the building of quarters. We most emphatically agree. We are pleased to report that further investigation has shown that a saving of approximately six millions can probably be effected on this part of the Plan, but we would emphasise that final estimates cannot be given with complete accuracy until the fullest investigations are made. We strongly recommend that this item should be proceeded with without any more delay than is necessitated by the capacity of the Public Works Department to do the work. We consider that it is the most urgent need, and that, if the work can be pushed on with quickly, the building of District Hospitals, which we shall deal with later, can wait.

The Committee agrees with the recommendation at the end of paragraph 8 of the Report of the Committee which assisted the Director of Medical Services (Annexure *B* to the Plan) that the bed ratios among the different classes of patients should be 80 1st Class, 200 2nd Class and 1,220 3rd Class.

4. KANDANG KERBAU MATERNITY HOSPITAL

The Committee is entirely satisfied with the proposals for the extension of this hospital. Here again, the main cost will be on account of quarters. A breakdown of the estimates is shown in Appendix *B* to this Report. A Schedule of proposed accommodation is shown in Appendix *C* from which it will be seen that the ward additions will give a bed ratio of 35, 77 and 410 as between Classes I, II and III excluding provision for labour rooms (1st Class 3 bed size; 2nd Class 6 bed size and 3rd Class 27 bed size) and isolation rooms (1st and 2nd Class, ten; 3rd Class 20 rooms).

5. RURAL CLINICS AND DISPENSARIES

The provision in this part of the Plan is for 16 clinics at $41,000 each and three dispensaries (with quarters for Hospital Assistants and Hospital Attendants) at $19,000 each. Thirteen of the Clinics will be established at the following places:—

Paya Lebar.
East Coast Road (8 mile).
Thomson Road.
Ulu Bedok.
Pulau Tekong.
Holland Road.
Pulau Bukom Kechil.
Sembawang.
Pasir Panjang.
Pulau Brani.
Tampenis (5 mile).
Jurong Road (17 mile).
Yio Chu Kang (6¼ mile).

We agree that the choice of the three remaining sites should be left over until more information is available as to how the needs of the population will develop. The dispensaries will be sited at Changi, Sembawang and Pasir Panjang.

The need for these Clinics is stated in paragraph 13 of the Medical Plan and is the subject of severe comment in paragraph 16 of the Report of the Committee which assisted the Director of Medical Services (Annexure *B* to the Plan). We are satisfied with the need for the proposals made and agree that the distribution proposed is suitable. Ancillary work will cost a further 10 per cent, making $784,000, a slight increase upon the estimate shown in the Plan.

Most of the expenditure for this item also, we were informed, has been entered for allocation under the Colonial Development and Welfare Fund, and the remarks we have already made in regard to the Leper Settlement apply to it.

6. ST. JOHN'S ISLAND WATER SUPPLY

We did not visit St. John's Island, but the Committee took note of the publicity that the Quarantine Station has received in the press and discussed the question at length in Committee. The problem of the water supply is a difficult one, and investigations are not yet completed. We consider, however, that the item is one that should be accepted. We were informed that it was hoped to receive an allocation covering the whole cost from Colonial Development and Welfare Fund and the remarks we have made in regard to the Leper Settlement and the Rural Clinics and Dispensaries apply to this item. Until such time as fuller investigations can be made and firmer estimates prepared, we recommend that the provision of $250,000 should stand in the plan.

7. SCHOOL MEDICAL AND DENTAL CLINIC

The Committee discussed this item at some length, but the discussions turned mainly upon the site. We are entirely satisfied with the necessity for the provision of such a clinic, but consider that the closest attention should be paid to the choice of the most suitable site and that, if necessary, land should be purchased. The breakdown of figures for this work is as follows:—

	$
Building	122,000
Piling	24,000
Staff Nurse Quarters (3)	25,000
Hospital Assistant Quarters (1)	15,000
Hospital Servants' Quarters (2)	9,000
Ancillaries at 10 per cent	19,600

making in all approximately $215,000, a slight addition to the estimate as shown in the Plan.

The estimate for piling is, of course, based on the present site proposals, and if our recommendation for the investigation of a suitable alternative site is accepted, it is possible that the overall estimate can be reduced on this account.

This item is also included in the proposals for allocation under the Colonial Development and Welfare Scheme, and the remarks we have made in regard to such items apply to this one.

8. SEA AND AIR PORTS

It was explained to the Committee that a considerable amount of work would have to be done in the next few years if Singapore were to present its quarantine facilities as models, as it had done in the past. The work would fall into two parts, namely, the rehabilitation and extension of the quarantine station at St. John's Island and the provision of facilities at the new Changi Airport. The St. John's Island station was designed thirty years ago and in the main was satisfactory, but the neglect from which it had suffered during the war, and modern requirements in respect of quarantine, demanded complete rehabilitation. It is proposed that of the sixteen existing Camps eight should be reconstructed at a cost of $400,000, and that the other eight should be rehabilitated at a cost of about $152,000. The plans for quarantine arrangements at Changi Airport are not ready yet, but it was expected that something like $270,000 would be required for this work.

The Committee agreed with these items. The Committee was informed that part of this work had been entered as one for an allocation of funds from the Colonial Development and Welfare Fund. The full amount could not be entered owing to the overall limit set for medical items in that scheme by the Singapore Committee dealing with the matter, but it was hoped to obtain sufficient money from the Fund to pay for one-half of the cost of the proposed work at St. John's Island. The remarks we have already made in regard to projects listed under the Colonial Development and Welfare Fund apply, therefore, to this item.

9. VENEREAL DISEASES HOSPITAL

Considerable discussion took place in the Committee in respect of this item, during which the desirability of making suitable provision at the General Hospital was considered as an alternative to having a Special hospital for the treatment of venereal diseases. The Medical Plan envisages a Hospital to accommodate 200 persons at a cost of $4½ millions. The Committee eventually came to the conclusion that the building of a new Hospital to accommodate 200 persons should be postponed for further consideration in a few years time, that the work should continue to be done in the present hospital at Middle Road, but that the accommodation should be increased by making available those parts of the building that are at present used for staff accommodation, and building staff accommodation elsewhere. It was estimated that in this way accommodation could be increased from 50 to 120 beds. It was further considered that one clinic should be built at a suitable place, and that a travelling dispensary organisation should also be provided. The Committee recommends that the present buildings and the land on which they stand should be acquired under the provisions of the Land Acquisition Ordinance.

It is, therefore, recommended that item 9 be omitted from the Plan for the time being and that a new item on the above lines be substituted. A breakdown of the Estimates is shown in Appendix *D* to this Report.

We desire to emphasise, however, that it may be necessary to reconsider this problem in a few years' time.

10. ORTHOPÆDIC HOSPITAL

In connection with this item the Committee would refer to the additional item on page 7 of Council Paper No. 4 of 1948, namely a Tuberculosis Hospital of 300 beds at an estimated cost of $5,871,000. The Committee discussed the question of hospitalisation for tuberculosis at considerable length with reference to Council Paper No. 24 of 1948 prepared by the Director of Medical Services. After considerable discussion the Committee decided to recommend that the Medical Plan should contain provision for the building of a Sanatorium to include an Orthopædic section and that the present item should be deleted. We therefore asked for rough estimates to be prepared of the cost of such a hospital and these are set out in Appendix *E* to this Report. We accept these tentative estimates and recommend that this item, at a cost of $2,217,000, should be substituted for the present item at a cost of $1,100,000. In recommending the inclusion of this item in the Medical Plan we desire, however, to emphasise that it is not our intention that this should be a substitute for other measures in the fight against tuberculosis, namely the extension of Tan Tock Seng in the Medical Plan and the provision of other facilities in the ordinary Medical, Social Welfare and Education Departments' budgets. Tuberculosis, we are convinced, is a gigantic problem which can only be attacked successfully if attacked at every angle simultaneously, namely by better housing conditions, better feeding, school medical services, infant welfare, home treatment, etc. We therefore wish to state clearly that this item is recommended as an additional unit in the fight and not in substitution of those other methods of attack which we have outlined.

11. EXTENSION OF TAN TOCK SENG HOSPITAL

This item is shown in the Medical Plan as requiring $1¼ millions. In Committee the Director of Medical Services asked for a reconsideration of the original scheme to enable the question of quarters to be tackled satisfactorily. The Plan envisages that the whole of the 800 beds at Tan Tock Seng Hospital should be devoted to use as a hospital-clinic for the treatment of Tuberculosis. A revised breakdown of estimates was produced to and examined by the Committee and is attached to this Report as Appendix *F*. It will be seen that the major part of the work is the provision of quarters. The Committee examined these proposals in detail and approved them. We therefore recommend that this item should stand in the Plan and that the estimate should be revised from $1,758,000 to $2,800,000.

12 RURAL LABOURERS' LINES

It was represented to the Committee that out of a total force of rural health labourers of 776, only 25 per cent were housed. We were informed that it is expected that the figure of 776 will remain fairly constant. The Committee were unanimously of the opinion that it should be an integral part of the Medical Plan to provide accommodation for all such labourers over a period of years. We also consider that quarters should be provided for Sanitary Inspectors, Technical Subordinates and other officers who are required to live in the area they serve. Revised estimates show a reduction on the original estimate of $2 millions for labourers' quarters of $400,000 to $1,600,000. If, however, the recommendation is accepted to provide quarters for Sanitary Inspectors and Technical Subordinates, a further amount of $670,000 will be necessary, making $2,270,000 in all.

We also consider that the description of this item should be changed to 'Health Department Housing'.

13. ANTI-MALARIA WORK

It was explained that this item cannot at present be allocated to any particular work, but is an attempt to make an intelligent forecast of special capital work which will be required in the future. Maintenance of present anti-malarial works is well-looked after by annual provision.

Although not an urgent matter, the Committee considered that the item should have a place in the Medical Plan if the picture of the future needs was to be correct. We therefore recommend its inclusion.

14. DISTRICT HOSPITALS

In view of the revision of item 3 relating to the General Hospital to provide for 1,500 beds instead of 1,000 beds as in the original 1947 Plan, and of the opinion expressed to us that patients generally preferred to go a longer distance to one good central hospital rather than a shorter distance to a secondary hospital, and of the desirability of waiting to see how the expansion of the town areas of Singapore might affect this problem, it was agreed that this item should be deleted from the Plan, but with a recommendation that the matter should be re-considered in a few years' time. This recommendation effects a reduction of $11 millions.

15. EXPANSION OF INFECTIOUS DISEASES HOSPITAL

The Director of Medical Services explained that a Special Committee was being formed to consider this problem, jointly with the Municipal Health authorities. For these reasons it was agreed that until the problem was more fully resolved this item could be omitted from the Plan.

16. MENTAL HOSPITAL IMPROVEMENTS

Before the war there were 1,800 patients in this hospital. The number was considerably fewer now owing largely to the callous attitude adopted by the Japanese towards this type of infirmity. The Committee supports the Director of Medical Services in considering that planning on the basis of a population of 2,000 inmates was reasonable. The Committee also agreed that provision should be made for recreational facilities. A revised estimate of cost was produced to the Committee and is attached as Appendix *G* to this Report. We recommend that this item be included in the Plan and that the estimated provision be increased from $1,880,000 to $3 millions.

17. ADDITIONAL ITEM

In the course of its discussions the Committee was asked to consider an additional item not appearing in the Plan contained in Council Paper No. 4 of 1948. This is a proposal, by the Director of Medical Services to establish a Mental Defectives Home to house 150 low-grade defective and feeble-minded children who, without proper care and control, are liable to become a danger to public peace and morality. These children cannot be dealt with in the same way as adults, nor is their problem the same as that connected with handicapped children who, apart from their physical infirmities, are mentally normal. The proposal has the complete support of this Committee, and an item of $1 million has been entered in the Plan which we now recommend. A breakdown of the Estimates for this item is contained in Appendix *H*. The question of the site for this Home was discussed at length, and it was agreed that the Home should be separate and distinct from the Mental Hospital and that it should be constructed in an area which made this distinction clear, even though it may be necessary to acquire land for the purpose.

7. The Committee endorses the opinion expressed in paragraph 3 of the Report of the Committee which assisted the Director of Medical Services (Annexure *B* to the Plan) that a ten-year period should be the maximum in which the proposals contained in this Plan should be completed. We have been much impressed by the medical needs of the Colony, and therefore strongly recommend that the revised Plan which we have prepared and attach as Appendix *I* to this Report should be approved, and that it should be carried out within the period of ten years into which we have fitted it.

It will be seen that the Plan we recommend for adoption is expected to cost about $33 millions compared with about $50 millions as set out in the original Plan. The reasons for this are mentioned at their appropriate places in this Report, but we may summarise the main reasons briefly and approximately as follows:—

(*a*) a saving on estimates for the General Hospital of $6 millions;

(*b*) a saving of $2¾ millions on the proposals for the Venereal Diseases Hospital;

(*c*) a saving of $250,000 on the Medical Store;

(*d*) a saving of $11 millions on the proposals for District Hospitals;

(*e*) a saving of $1½ millions on the proposals for Infectious Diseases.

Against these savings, however, there has to be set additional expenditure in connection with the Tuberculosis Sanitorium ($1,000,000); extension at Tan Tock Seng ($1,000,000); Health Department Housing ($750,000); Mental Hospital improvements ($1,000,000) and the Home for Mentally Defective Children ($1,000,000).

In this connection we wish to emphasise two things. Firstly, some of the 'saved' items may have to be considered again at a later date; secondly, the figures given are not firm estimates. It would have been impossible for the work of this Committee to have been completed for a very long time if final lay-outs had had to be decided and final plans prepared. When this is done, some variations from the estimates given must be expected.

8. In conclusion we desire to record our thanks to our Secretary (Mrs. D. Alexander) for the able way in which she carried out her duties.

A. WILLIAMS, *Chairman*.
M. J. NAMAZIE.
C. C. TAN.
P. F. de SOUZA.
LIM YEW HOCK.

SINGAPORE, 12*th September*, 1948.

APPENDIX *A*

SINGAPORE GENERAL HOSPITAL

	$	$
Alterations to Existing Buildings:—		
Additional Storey over Ward 4	265,000	
Additional Storey over Ward 5	265,000	
New Theatre block	300,000	
Air Conditioning for above	60,000	
Two new lifts and one shaft	47,000	
Electrical work to Foregoing	66,000	
		1,003,000
Alterations to existing Ward (1)		20,000
Alterations to existing Ward (7)		20,000
Alterations to existing Ward (10)		20,000
Alterations tô existing Ward (11)		20,000
Alterations to X'Ray Therapy and Theatres A and B ...		10,000
Additional Storey over Ward 17		300,000
Electrical work to last		22,500
Lift and Shaft to existing Theatre		27,000
Re-design Ward (14)		25,000
Demolition of old buildings		40,000
New Works:—		
Pathological Laboratory	350,000	
Piling	70,000	
		420,000
Out-patients Department		185,000
Children's 200 bed Wards		580,000
Laundry building	125,000	
Equipment	225,000	
		350,000
New Kitchens		100,000
Hospital Quarters:—		
M.O's quarters 27 numbers at $40,000		1,080,000
M.O's flats 34 numbers at $35,000		1,290,000
Sisters and Matrons quarters—83 suites + 6 rooms ...		800,000
Nurses hostel—110 rooms + 10 Air Conditioned rooms ...		800,000
Hospital servants 323 quarters (2 room units) (if single room units $1,250,000)		1,400,000
Laboratory Assistants and Dental Mechanics 20 single at $5,500 + 20 married at $15,000		410,000
15 garages and 12 quarters		70,000
Site Formation		50,000
Roads		200,000
Modernisation of electrical mains and substation ...		200,000
Modernisation of water supply		500,000
New Sewers		100,000
Acquisition of Land (not known)		—
	Total ...	10,042,500

APPENDIX *B*

KANDANG KERBAU HOSPITAL

		$
Existing Administration Block:—		
Three floors to be converted to provide 32 3rd class Ante Natal beds, Septic labour Room, 27 3rd class labour beds, creche and 48 3rd class maternity beds plus additional lavatory accommodation ...		60,000
Additional Storey to provide 64 3rd class maternity beds		200,000
Existing Out-patients Department converted to Nurses Quarters ...		10,000
Existing Maternity Block—converted to provide six 36 bed wards and extra lavatory accommodation		40,000
Electrical Work		11,000
New Building:—		
Labour Wards for 3 1st Class 6 2nd Class and 27 3rd Class patients		
Maternity Wards for 25 1st Class and 50 2nd Class patients		
Gynæcology Wards for 10 1st Class 27 2nd Class and 50 3rd Class patients		
Theatres—One Large One Septic		
Kitchen and Stores—		
Administration—		
Out-patients three Departments Path. laboratory, Dispensary X'ray Room, Admission, Almoner's Office Secretary, Clerical Staff, Steward, Stores		
Matrons' Room		1,038,000
Electrical Work on New Hospital Building		95,000
Quarters:—		
(1) Hospital Servants 360 Midwives 60		
420 2 room units		1,856,000
(2) M.O's quarters 12 numbers at $40,000		480,000
(3) Hospital Assistants—10 married at $15,000 and 4 single at $5,000		172,000
(4) Sisters and Nurses quarters:—		
Sisters 24 Matrons 4		
28 suites plus 2 air conditioned rooms ...		225,000
Nurses 75 single rooms 52 double rooms plus 6 air conditioned rooms		953,850
(5) Five Garages and nine syces quarters		25,000
Ancillary Works:—		
Piled foundations to all new buildings		945,000
Sewers to new building		50,000
Water supply to new building		8,000
Roads and two new bridges—Roads	$70,000	
Bridges	$20,000	
		90,000
Fences		6,000
Acquisition of Land (not known)		—
		6,264,850
Contingencies ...		335,150
Total ...		6,600,000

APPENDIX *C*

KANDANG KERBAU HOSPITAL

SCHEDULE OF PROPOSED ACCOMMODATION

		Beds	*Beds*
Existing Administration Block:—			
Ground Floor—			
3rd Class Ante Natal:			
Two 8 bed wards		16	
One 16 bed wards		16	32
A Septic Labour Room:			
First Floor—			
3rd Class Labour:			
Three 9 bed wards			27
Creche			
Second Floor—			
3rd Class Maternity:			
One 24 bed ward		24	
One 9 bed ward		9	
One 8 bed ward		8	
One 4 bed ward		4	
One 3 bed ward		3	48
Additional Storey—(New)			
3rd Class Maternity:			
Two 32 bed wards			64
Existing Maternity Block—			
Six 36 bed wards			216
	Total 3rd Class ..		387
New Building:—			
Second Class Maternity—			
Ten 5 bed wards		50	
Second Class Labour—			
Three 2 bed wards		6	56
First Class Maternity—			
Nine double wards	18 beds		
Seven single wards	7 beds	25	
Labour—Three Single Units		3	28
Isolation (All Classes)—			
Thirty cubicles			30
Gynæcology—			
3rd Class—Five 10 bed wards		50	
2nd Class—Three 9 bed wards		27	
1st Class—Ten single bed wards		10	87
		Total ...	588

SUMMARY

Class	Antenatal	Maternity	Labour	Gynaecology	Total	Isolation
1st ..	—	25	3	10	38	30
2nd ..	—	50	6	27	83	
3rd ..	32	328	27	50	437	
Total ..	32	403	36	87	558+30=588	

APPENDIX *D*

VENEREAL DISEASES HOSPITAL

Conversion of existing Venereal Diseases Hospital at Middle Road to accommodate 120 beds

	$	$
Existing Buildings:—		
Alterations and additions to three existing buildings ...		100,000
New Buildings:—		
Chief Medical Officer's House 1	40,000	
Quarters for Medical Officers 5	175,000	
Quarters for Sisters, Supervisor, Laboratory Assistants, Hospital Assistants and Clerks 42	630,000	
Quarters for Nurses and Female Clerks 33	264,000	
Quarters for Hospital Servants 46	200,000	
Garages for 4 Ambulances	10,000	
Ancillaries	91,000	
		1,410,000
Clinic:—		
Building for Clinic	80,000	
Quarters for Medical Officers 2	70,000	
Quarters for Hospital Assistants 6	90,000	
		240,000
Total ...		1,750,000

APPENDIX *E*

NEW 300 BED T.B. HOSPITAL NEAR BEDOK—

PRELIMINARY ESTIMATE OF COST

	$	$
Hospital:—		
Three two storey Ward Blocks each of 100 beds at $280,000		840,000
Administration block single storey		70,000
Kitchen block single storey		60,000
Covered ways		5,000
Electrical work		77,500
Quarters:—		
Senior M.O.	45,000	
2 A.M.Os. at $35,000	70,000	
1 Matrons quarters	35,000	
5 Sisters quarters	40,000	
35 Nurses quarters	270,000	
6 Hospital Assistants quarters	42,000	
8 Cooks, 80 Ward Staff, 10 Kebuns, 10 Artisans—Total 108 quarters	370,000	
		872,000
Ancillary Works:—		
Roads say one mile		47,500
Sewer and disposal plant		30,000
Water Supply		25,000
Site Formation		40,000
Contingencies		150,000
Total ...		2,217,000

APPENDIX *F*

TAN TOCK SENG HOSPITAL

	$
Improvements:—	
Modern Sanitation to existing Mandalay Road Hospital and quarters	97,000
Re-roofing 18 wards and covered ways with asbestos, replacing corrugated iron	113,000
Quarters:—	
Medical Officers Quarters—	
Extensive repairs to five existing, new quarters 3 numbers ...	200,000
Sisters quarters—	
10 Sisters plus 1 Almoner—11 suites	88,000
Nurses quarters—	
Hostel for 60 Nurses (if Students' Hostel available no expenditure required on this item)	300,000
Hospital Assistants quarters—	
Extensive repairs to 19 married quarters	95,000
Extensive repairs to 12 single quarters	18,000
Extensive repairs to Bachelors Mess 12	10,000
New married quarters for 31 families	465,000
New single quarters for six single	33,000
Hospital Servants quarters—	
New quarters for 172 families	745,000
New quarters for 88 single	340,000
Ancillary Works:—	
Water Supply	30,000
Sanitation	75,000
Roads (say one mile)	47,000
Site formation	20,000
	2,676,000
Contingencies ...	124,000
Total ...	2,800,000

APPENDIX *G*

MENTAL HOSPITAL

	$	$
Essential Works:—		
Two 50 bed wards	225,000	
Pantry to each ward	30,000	
Two T.B. wards	125,000	
Cold room of 1,000 cub. ft.	10,000	
New boiler house and move existing boilers, etc.	9,000	
Clerk and Stewards stores	100,000	
Garage, two vehicles and quarters for two drivers	12,000	
Quarters:—		
2 M.Os. at $40,000	80,000	
6 Nursing Sisters and Matron	60,000	
12 Hospital Assistants or similar	120,000	
320 Hospital Servants	1,393,000	
32 Local Nurses	256,000	
Four Male Nurses	80,000	
		2,500,000
Desirable Works:—		
Modernisation of wards	120,000	
Two rooms for visitors	12,000	
Renovation of Male Workers Dining Room	2,250	
Store for farm implements, etc.	17,300	
Occupational Therapy	85,000	
Central recreation hall	80,000	
Work on Kitchens	10,000	
Gate Lodge	3,500	
Day rooms to two wards	30,000	
Airing Court to one female ward	1,000	
		361,050
	Contingencies	138,950
	Total	3,000,000

APPENDIX *H*

HOME FOR MENTALLY DEFECTIVE CHILDREN

	$
150 bedded children's wards	435,000
Quarters for Medical Officer 1	40,000
Quarters for one Matron and five Sisters	50,000
Quarters for one Steward and two Hospital Assistants	45,000
Quarters for Hospital Servants 80	345,000
Ancillaries	85,000
Total	1,000,000

APPENDIX I

MEDICAL PLAN

Institution	1949	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year	Total
	$	$	$	$	$	$	$	$	$	$	$	$
1. *Base Medical Store Pharmacy School and Essential Manufactory	145,000	152,000	153,000	..	..	..	..	..	..	..	..	450,000
2. †Leper Settlement	114,000	114,000	200,000	200,000	152,000	..	..	..	..	..	..	780,000
3. ‡General Hospital	..	760,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,282,000	10,042,000
4. Kandang Kerbau Hospital ..	..	587,000	587,000	500,000	500,000	500,000	750,000	1,000,000	1,000,000	1,076,000	100,000	6,600,000
5. §Rural Clinics and Dispensaries	82,000	90,000	90,000	90,000	90,000	90,000	110,000	110,000	32,000	..	..	784,000
6. St. John's Island Water Supply	..	..	..	250,000	..	..	..	..	..	..	..	250,000
7. Medical and Dental School Clinic	..	215,000	..	..	..	..	..	..	..	..	..	215,000
8. Sea and Air Ports ..	..	..	200,000	200,000	100,000	100,000	72,000	150,000	..	..	..	822,000
9. Venereal Diseases Hospital ..	..	..	250,000	250,000	250,000	250,000	250,000	250,000	250,000	..	..	1,750,000
10. T.B. Sanatorium	..	..	750,000	750,000	500,000	217,000	..	..	..	..	..	2,217,000
11. Tan Tock Seng Hospital ..	..	288,000	250,000	250,000	250,000	500,000	500,000	500,000	..	262,000	..	2,800,000
12. Health Department Housing ($100,000 (1948)) ..	100,000	100,000	100,000	200,000	200,000	200,000	200,000	300,000	300,000	200,000	370,000	2,270,000
13. Anti-Malarial	..	..	..	..	..	50,000	50,000	50,000	50,000	100,000	200,000	500,000
14. Mental Hospital	..	60,000	140,000	100,000	100,000	100,000	500,000	500,000	500,000	500,000	500,000	3,000,000
15. Mental Defective	..	..	..	200,000	200,000	200,000	200,000	200,000	..	..	..	1,000,000
Total Capital Expenditure ..	441,000	2,366,000	3,720,000	3,990,000	3,342,000	3,207,000	3,632,000	4,060,000	3,132,000	3,138,000	2,452,000	33,480,000
Approximate Annual Increase above present Annually Recurrent Expenditure	..	250,000	500,000	1,000,000	1,500,000	2,000,000	2,750,000	3,000,000	3,750,000	4,000,000	4,000,000	Expected annual increase in recurrent expenditure on completion of Plan—4 millions.

*Completed. †Two-thirds completed. ‡New nurses home and new out-patients department in process of completion. Other minor improvements carried out. §Four completed.

Note.:— A very considerable advance is planned for 1954.

APPENDIX *II*

FINANCIAL STATEMENT FOR 1953

(*a*) Receipts

Hospital Fees, etc.	Medical General and Health	Total
$1,151,001.28	$444,780.74	$1,595,782.02

(*b*) Payments

——	Medical General	Hospitals and Dispensaries	Health Branch	Social Hygiene Branch	Government Medical Store	Total
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Personal Emoluments	1,177,920 53	7,768,917 81	1,288,569 63	135,325 99	144,283 02	10,515,016 98
Other Charges Annually Recurrent ..	154,543 53	5,620,566 55	1,381,522 34	110,636 37	credit 438,990 41	6,828,278 38
Other Charges Special Expenditure ..	59,961 17	997,168 30	58,544 65	4,112 39	434,699 10	1,554,485 61
Total ..	1,392,425 23	14,386,652 66	2,728,636 62	250,074 75	139,991 71	18,897,780 97

Note:—Includes (*a*) Contribution to Tan Tock Seng Hospital. (*b*) Cost of Indents on Crown Agents.

APPENDIX *III*

IN-PATIENTS ALL HOSPITALS FOR THE YEAR 1953

The following table shows the hospitals maintained by the Medical Department, Singapore, the daily average number of patients in each, the number of patients admitted during the year, the total number of patients treated, the number of deaths and the death rate per hundred treated (the Quarantine Hospital and Leper Settlement are not included).

Hospitals	Average No. of patients	Admissions during the year	CASES TREATED DURING THE YEAR			Deaths	Mortality per cent
			Male	Female	Total		
General Hospital	759.70	25,484	17,346	8,873	26,219	2,720	10.37
T.T.S.H. (T.B. and General)	547.49	1,723	1,849	423	2,272	253	11.14
K.K. Hospital Maternity Gynaecology	261.00	23,807	..	24,048	24,048	54	.23
Police Head Quarters	8.27	537	552	..	552	..	..
H. M. Prison Outram Road	44.96	1,036	1,095	..	1,095	3	.27
H. M. Prison Changi	12.00	123	139	..	139	..	..
Woodbridge Hospital	1,724.00	1,158	1,835	1,070	2,905	94	3.24
St. Andrew's Orthopædic Hospital	79.18	74	86	65	151	1	.66
Social Hygiene	44.30	2,827	871	2,010	2,881	4	.17
Middleton Hospital	91.00	2,049	1,392	747	2,139	72	3.30
Total (Including 797 Transfers)	..	58,818	25,165	37,236	62,401	3,201	5.13

N.B.:—Total cases treated in 1952: 55,057.

APPENDIX *IV*

HOSPITALS, COLONY OF SINGAPORE, IN-PATIENTS*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953

According to the Intermediate List adapted for use in Singapore, of the 1948 (6th) International List of Diseases and Causes of Death

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡Total cases treated	§Remaining at end of 1953	Remarks
		I.—*Infective and Parasitic Diseases*						
A 1	001–008	Tuberculosis of respiratory system ..	451	1,920	268	2,371	473	
A 2	010	Tuberculosis of meninges and central nervous system	11	126	98	137	3	
A 3	011	Tuberculosis of intestines, peritoneum and mesenteric glands	3	18	2	21	3	
A 4		Tuberculosis of bones and joints:—						
(*a*)	012.0, 013.0	Tuberculosis of the vertebral column ..	57	133	2	190	70	
(*b*)	012, 013 except 012.0, 013.0	Tuberculosis of other bones and joints	49	132	2	181	59	
A 5		Tuberculosis, all other forms:—						
(*a*)	014	Tuberculosis of skin and subcutaneous cellular tissue	..	1	..	1	..	
(*b*)	015	Tuberculosis of lymphatic system ..	1	37	..	38	..	
(*c*)	016	Tuberculosis of genito-urinary system	..	23	2	23	..	
(*d*)	017	Tuberculosis of adrenal glands ..	..	..	..	..	..	
(*e*)	018	Tuberculosis of other organs ..	1	17	2	18	..	
(*f*)	019	Disseminated tuberculosis ..	1	64	40	65	2	
		Carried forward ..	574	2,471	416	3,045	610	

The headings are taken from the Intermediate List of 150 Causes for Tabulation of Morbidity and Mortality as published in the 'Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death' (Sixth Revision of the International Lists of Diseases and Causes of Death, 1948).

Reference should be made to the Detailed List of the Diseases published on pages 45 to 321 of Volume I of the above Manual whenever there is any doubt about the entry in the list.

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* Excluding cases in Leper Settlement.

† *i.e.* the year previous to that for which the return is made.

‡ 'Total cases treated' will, of course, include those remaining in Hospital at the end of the previous year.

§ The figures in this column to be carried on to the next year's Return.

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	574	2,471	416	3,045	610	
		I.—Infective and Parasitic Diseases —contd.						
A 6	020	Congenital syphilis	5	106	9	111	1	
A 7		Early Syphilis:—						
(*a*)	021.0, 021.1	Primary syphilis	..	22	..	22	1	
(*b*)	021.2	Secondary syphilis	6	27	2	33	5	
(*c*)	021.3	Early syphilis, relapse following treatment	..	..	..	..	..	
(*d*)	021.4	Early syphilis (unspecified stage) ..	..	..	..	..	..	
A 8	024	Tabes dorsalis	2	16	..	18	1	
A 9	025	General paralysis of insane ..	..	..	..	..	..	
A 10		All other syphilis:—						
(*a*)	022	Aneurysm of aorta	..	..	..	..	..	
(*b*)	023	Other cardiovascular syphilis ..	..	..	..	..	..	
(*c*)	026	Other syphilis of central nervous system	..	..	..	..	..	
(*d*)	027	Other forms of late syphilis ..	7	188	2	195	6	
(*e*)	028	Latent syphilis	..	..	..	..	..	
(*f*)	029	Syphilis, unqualified	2	611	10	613	4	
A 11		Gonococcal infections:—						
(*a*)	030	Acute or unspecified gonorrhoea ..	1	290	..	291	5	
(*b*)	031	Chronic gonococcal infection of genito-urinary system	..	..	..	..	..	*See* A 11 (*e*)
(*c*)	032	Gonococcal infection of joint ..	..	..	..	..	..	*See* A 11 (*e*)
(*d*)	033	Gonococcal infection of eye ..	1	88	..	89	1	
(*e*)	034–035	Gonococcal infection of other sites ..	3	123	1	126	8	Includes A 11 (*b*) and (*c*)
		Carried forward ..	601	3,942	440	4,543	642	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	601	3,942	440	4,543	642	
		I.—Infective and Parasitic Diseases —contd.						
A 12	040	Typhoid fever	10	136	10	146	9	
A 13		Paratyphoid fever and other Salmonella infections:—						
(*a*)	041	Paratyphoid fever A, B or C ..	..	4	..	4	..	
(*b*)	042	Other Salmonella infections ..	..	..	..	..	..	
A 14	043	Cholera	..	..	..	..	..	
A 15	044	Brucellosis (undulant fever) ..	..	..	..	..	..	
A 16		Dysentery, all forms:—						
(*a*)	045	Bacillary dysentery	..	40	5	40	..	
(*b*)	046	Amoebiasis	1	171	15	172	4	
(*c*)	047–048	Other protozoal and unspecified forms of dysentery	1	31	1	32	..	
A 17	050	Scarlet fever	..	..	..	..	..	
A 18	051	Streptococcal sore throat	..	..	..	..	..	
A 19	052	Erysipelas	..	3	..	3	..	
A 20	053	Septicaemia and pyaemia	1	41	26	42	2	
A 21	055	Diphtheria	22	386	51	408	27	
A 22	056	Whooping Cough	..	30	..	30	..	
A 23	057	Meningococcal infections	..	8	2	8	1	
A 24	058	Plague:—						
(*a*)	058.0	Bubonic	..	..	..	..	..	
(*b*)	058.1	Pneumonic	..	..	..	..	..	
(*c*)	058.2	Other Plague	..	..	..	..	..	
A 25	060	Leprosy	2	12	..	14	2	
		Carried forward ..	638	4,804	550	5,442	687	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	638	4,804	550	5,442	687	
		I.—*Infective and Parasitic Diseases —contd.*						
A 26		Tetanus:—						
(*a*)	061	Tetanus of the new-born ..	..	19	17	19	..	
(*b*)	..	Tetanus, other forms	2	63	30	65	..	
A 27	062	Anthrax	..	..	..	..	..	
A 28	080	Acute Poliomylitis	40	43	5	83	34	
A 29	082	Acute infectious encephalitis ..	..	1	..	1	..	
A 30	081, 083	Late effects of acute poliomyelitis and acute infectious encephalitis ..	..	..	..	..	..	
A 31	084	Small-pox	..	..	..	..	..	
A 32	085	Measles	..	137	2	137	3	
A 33	091	Yellow fever	..	..	..	..	..	
A 34	092	Infectious hepatitis	1	184	19	185	4	
A 35	094	Rabies	..	..	..	..	..	
A 36		Typhus and other rickettsial diseases:—						
(*a*)	100	Louse-borne epidemic typhus ..	..	..	..	..	..	
(*b*)	101	Flea-borne endemic typhus (murine) ..	..	6	..	6	..	
(*c*)	104	Tick-borne epidemic typhus ..	..	..	..	..	..	
(*d*)	105	Mite-borne typhus	..	11	..	11	..	
(*e*)	102–103 106–108	Other and unspecified typhus ..	..	21	..	21	1	
		Carried forward ..	681	5,289	623	5,970	729	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡Total cases treated	§Remaining at end of 1953	Remarks
		Brought forward ..	681	5,289	623	5,970	729	
		I.—*Infective and Parasitic Diseases —contd.*						
A 37		Malaria:—						
(*a*)	110	Vivax malaria (benign tertian) ..	1	50	..	51	1	
(*b*)	111	Malariae malaria (quartan) ..	..	1	..	1	..	
(*c*)	112	Falciparum malaria (malignant tertian)	1	43	5	44	..	
(*d*)	114	Mixed malaria infections ..	..	2	..	2	..	
(*e*)	115	Blackwater fever	..	..	..	..	..	
(*f*)	113 116–117	Other and unspecified forms of malaria	1	53	..	54	..	
A 38		Schistosomiasis:—						
(*a*)	123.0	Schistosomiasis vesical (S. haematobium)	..	..	..	..	..	
(*b*)	123.1	Schistosomiasis intestinal (S. Mansoni)	..	..	..	..	..	
(*c*)	123.2	Schistosomiasis Pulmonary (S. Japonicum)	..	..	..	..	..	
(*d*)	123.3	Other and unspecified Schistosomiasis	..	..	..	..	..	
A 39	125	Hydatid disease	..	..	..	..	..	
A 40	127	Filariasis	..	21	..	21	..	
A 41	129	Ankylostomiasis	..	51	..	51	..	
A 42		Other diseases due to helminths:—						
(*a*)	124	Other trematode infestation ..	..	..	..	..	..	
		Carried forward ..	684	5,510	628	6,194	730	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	684	5,510	628	6,194	730	
		I.—*Infective and Parasitic Diseases —contd.*						
A 42 (*b*)	126	Tape worm (infestation) and other cestode infestation	..	..	..	..	..	
(*c*)	128	Trichiniasis	..	..	..	..	..	
(*d*)	130.0	Ascariasis	1	128	4	129	1	
(*e*)	130.1–130.3	Other diseases due to helminths ..	..	26	..	26	2	
A 43		All other diseases classified as infective and parasitic:—						
(*a*)	036	Chancroid	..	84	..	84	..	
(*b*)	037	Lymphogranuloma Venereum ..	6	103	..	109	1	
(*c*)	038	Granuloma inguinale, venereal ..	27	1,227	1	1,254	12	
(*d*)	039	Other and unspecified venereal diseases	3	48	..	51	..	
(*e*)	049	Food poisoning (infection and intoxication)	..	3	..	3	..	
(*f*)	059	Tularaemia	..	..	..	..	..	
(*g*)	063	Gas Gangrene	..	..	..	..	..	
(*h*)	064.2	Glanders	..	..	..	..	..	
(*i*)	064.3	Melioidosis	..	..	..	..	..	
(*j*)	064.0,064.1 064.4	Other bacterial diseases	..	..	..	..	..	
(*k*)	070	Vincent's infection	..	16	..	16	..	
(*l*)	071	Relapsing fever	..	..	..	..	..	
(*m*)	072	Leptospirosis icterohaemorrhagica (Weil's disease)	..	20	3	20	..	
(*n*)	073	Yaws	..	1	..	1	..	
		Carried forward ..	721	7,166	636	7,887	746	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward	721	7,166	636	7,887	746	
		I.—*Infective and Parasitic Diseases —contd.*						
A 43 (*o*)	086	Rubella (German measles)	..	1	..	1	..	
(*p*)	087	Chicken-pox	13	840	..	853	16	
(*q*)	088	Herpes Zoster	1	31	..	32	..	
(*r*)	089	Mumps	..	32	..	32	1	
(*s*)	090	Dengue	1	53	..	54	..	
(*t*)	093	Glandular fever	..	1	..	1	..	
(*u*)	095	Trachoma	2	54	..	56	7	
(*v*)	096.7	Sandfly fever	..	..	..	..	..	
(*w*)	120	Leishmaniasis	..	1	..	1	..	
(*x*)	121.0	Trypanosomiasis gambiensis	..	..	..	..	..	
(*y*)	121.0	Trypanosomiasis rhodesiensis	..	..	..	..	..	
(*z*)	121	Other and unspecified trypanosomiasis	..	..	..	..	..	
(*A*)	131	Dermatophytosis	..	..	..	..	..	
(*B*)	132	Actinomycosis	..	16	2	16	1	
(*C*)	133, 134	Other fungus infections	..	4	..	4	..	
(*D*)	135	Scabies	..	166	..	166	4	
(*E*)	054, 074 096.1–096.6 096.8, 096.9 122 136–138	All other diseases classified as infective and parasitic	..	6	..	6	..	
		Carried forward	738	8,371	638	9,109	775	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	738	8,371	638	9,109	775	
		II.—*Neoplasms*						
A 44	140–148	Malignant neoplasm of buccal cavity and pharynx	1	73	28	74	4	Comprises A 44 and A 45
A 45	150	Malignant neoplasm of oesophagus ..						
A 46	151	Malignant neoplasm of stomach ..	..	104	41	104	1	
A 47		Malignant neoplasm of intestine except rectum:—						
(*a*)	152	Malignant neoplasm of small intestine, including duodenum	..	..	..	..	..	*See* A 57 (*d*)
(*b*)	153	Malignant neoplasm of large intestine, except rectum	..	..	..	..	..	
A 48	154	Malignant neoplasm of rectum ..	..	..	..	..	..	
A 49	161	Malignant neoplasm of larynx ..	9	79	36	88	6	Comprises A 49 and A 50
A 50	162–163	Malignant neoplasm of trachea, and of bronchus and lung not specified as secondary						
A 51	170	Malignant neoplasm of breast ..	..	59	5	59	..	
A 52	171	Malignant neoplasm of cervix uteri ..	..	206	6	206	7	Comprises A 52 and A 53.
A 53	172–174	Malignant neoplasm of other and unspecified parts of uterus ..						
A 54	177	Malignant neoplasm of prostate ..	..	..	..	..	..	*See* A 57 (*f*)
A 55	190–191	Malignant neoplasm of skin ..	..	7	4	7	..	
A 56	196–197	Malignant neoplasm of bone and connective tissue	..	..	..	..	..	*See* A 57 (*h*)
		Carried forward ..	748	8,899	758	9,647	793	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	748	8,899	758	9,647	793	
		II.—*Neoplasms—contd.*						
A 57		Malignant neoplasm of all other and unspecified sites:—						
(*a*)	155–156	Malignant neoplasm of liver ..	1	88	38	89	2	
(*b*)	157	Malignant neoplasm of pancreas ..	..	..	..	..	..	*See* A 57 (*d*)
(*c*)	158	Malignant neoplasm of peritoneum ..	..	..	..	..	..	
(*d*)	159	Malignant neoplasm of unspecified digestive organs	3	96	20	99	7	Comprises A 47, A 48, A 57 (*b*), (*c*) and (*d*)
(*e*)	175–176	Malignant neoplasm of other and unspecified female genital organs ..	..	20	1	20	4	
(*f*)	178–179	Malignant neoplasm of other and unspecified male genital organs ..	1	36	5	37	..	Includes A 54
(*g*)	180–181	Malignant neoplasm of kidney, bladder and other urinary organs ..	..	..	..	..	..	*See* A 57 (*h*)
(*h*)	160 164–165 192–195 198–199	Malignant neoplasm of all other and unspecified sites	10	201	29	211	13	Includes A 56, A 57 (*g*)
A 58	204	Leukaemia and Aleukaemia ..	4	45	17	49	1	
A 59		Lymphosarcoma and other neoplasms of lymphatic and haematopoietic system:—						
(*a*)	200	Lymphosarcoma and reticulosacoma ..	..	..	..	..	..	
(*b*)	201	Hodgkin's disease	..	7	3	7	..	
		Carried forward ..	767	9,392	871	10,159	820	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	767	9,392	871	10,159	820	
		II.—*Neoplasms—contd.*						
A 59 (*c*)	202–203 205	Other neoplasm of lymphatic and haematopoietic system	..	..	..	..	..	
A 60		Benign neoplasms and neoplasms of unspecified nature:—						
(*a*)	210–211	Benign neoplasm of buccal cavity, pharynx and digestive system ..	..	..	..	..	..	*See* A 60 (*d*)
(*b*)	213–217	Benign neoplasm of female genital organs	..	291	..	291	8	
(*c*)	218	Benign neoplasm of male genital organs	..	..	..	..	..	*See* A 60 (*d*)
(*d*)	212, 219–229	Benign neoplasm of other and unspecified organs and tissue ..	2	209	1	211	2	Comprises A 60 (*a*), (*c*) and (*d*)
(*e*)	230	Neoplasm of unspecified nature of digestive organs	..	..	..	..	..	*See* A 60 (*g*)
(*f*)	233–235	Neoplasm of unspecified nature of other female genital organs	..	7	..	7	..	
(*g*)	231–232 236–239	Neoplasm of unspecified nature of other unspecified organs	2	44	8	46	..	Includes A 60 (*e*)
		Carried forward ..	771	9,943	880	10,714	830	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	771	9,943	880	10,714	830	
		III.—*Allergic, Endocrine System, Metabolic and Nutritional Diseases*						
		IV.—*Diseases of the Blood and Blood-Forming Organs*						
A 61	250–251	Nontoxic goitre	1	93	..	94	8	
A 62	252	Thyrotoxicosis with or without goitre ..	13	134	4	147	5	
A 63	260	Diabetes mellitus	6	275	17	281	13	
A 64		Avitaminosis and other deficiency states:—						
(*a*)	280	Beri Beri	2	26	8	28	..	
(*b*)	281	Pellagra	1	..	..	1	1	
(*c*)	282	Scurvy	..	3	..	3	..	
(*d*)	283–284	Rickets	..	12	..	12	..	
(*e*)	285	Osteomalacia	..	..	..	..	..	
(*f*)	286.0	Steatorrhoea and Sprue	..	..	..	..	..	
(*g*)	286.5	Malnutrition-unqualified	..	..	..	..	..	
(*h*)	286.1–286.4 286.6	Other avitaminoses and nutritional deficiency states	..	18	..	18	1	
		Carried forward ..	794	10,504	909	11,298	858	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	794	10,504	909	11,298	858	
		IV.—*Diseases of the Blood and Blood-Forming Organs—contd.*						
A 65		Anaemias:—						
(*a*)	290	Pernicious and other hyperchromic anaemias	1	20	3	21	..	
(*b*)	291	Iron deficiency anaemias (hypochromic)	1	13	..	14	..	
(*c*)	292–293	Other specified and unspecified anaemias	13	169	6	182	9	
A 66		Allergic disorders; all other endocrine, metabolic and blood diseases:—						
(*a*)	241	Asthma	11	283	8	294	8	
(*b*)	240 242–245	Angioneurotic oedema, urticaria and other allergic disorders ..	..	..	..	..	..	*See* A 66 (*l*)
(*c*)	253	Myxoedema and cretinism ..	..	1	1	1	..	
(*d*)	254	Other diseases of thyroid gland ..	..	14	..	14	..	
(*e*)	270	Disorders of pancreatic internal secretion other than diabetes mellitus ..	..	..	..	..	..	
(*f*)	271	Diseases of parathyroid gland ..	..	..	..	..	..	
(*g*)	272	Diseases of pituitary gland ..	..	5	..	5	..	
(*h*)	273	Diseases of Thymus gland ..	..	..	..	..	..	
(*i*)	274	Diseases of adrenal gland ..	..	..	..	..	..	
(*j*)	275–277	Other diseases of endocrine glands ..	..	..	..	..	..	*See* A 66 (*l*)
(*k*)	288	Gout	..	4	..	4	..	
(*l*)	287, 289	Other metabolic diseases ..	..	15	4	15	..	Includes A 66 (*b*) and (*j*)
(*m*)	294	Polycythemia	..	..	..	..	..	
		Carried forward ..	820	11,028	931	11,848	875	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	820	11,028	931	11,848	875	
		IV.—*Diseases of the Blood and Blood-Forming Organs—contd.*						
A 66 (*n*)	295	Haemophilia	..	5	..	5	..	
(*o*)	296	Purpura and other haemorrhagic conditions	1	29	9	30	1	
(*p*)	297	Agranulocytosis	..	..	..	..	..	
(*q*)	298	Diseases of spleen	1	9	..	10	..	
(*r*)	299	Other diseases of blood and blood-forming organs	..	3	..	3	..	
		V.—*Mental, Psychoneurotic and Personality Disorders*						
A 67		Psychoses:—						
(*a*)	300	Schizophrenic disorders (dementia praecox)	..	..	..	..	..	*See* A 67 (*f*)
(*b*)	301	Maniac-depressive reaction ..	..	..	..	..	..	
(*c*)	302	Involutional melancholia ..	..	..	..	..	..	
(*d*)	303	Paranoia and paranoid states ..	..	..	..	..	..	
(*e*)	304	Senile psychoses	1	8	1	9	1	
(*f*)	305–309	Other and unspecified psychoses ..	1,747	1,199	94	2,946	1,814	Comprises A 67 (*a*)—(*d*) and (*f*)
		Carried forward ..	2,570	12,281	1,035	14,851	2,691	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	2,570	12,281	1,035	14,851	2,691	
			V.—*Mental, Psychoneurotic and Personality Disorders—contd.*						
A 68			Psychoneuroses and disorders of personality:—						
	(*a*)	311	Hysterical reaction	..	43	..	43	..	
	(*b*)	314	Neurotic-depressive reaction ..	..	..	..	..	..	*See* A 68 (*e*)
	(*c*)	322	Alcholism	1	19	..	20	..	
	(*d*)	323	Other drug addiction	28	265	..	293	26	
	(*e*)	310,312–313 315–321,324 326	Other pyschoneuroses and disorders of personality	1	13	..	14	1	Includes A 68 (*b*), (*e*) and A 69
A 69		325	Mental deficiency	..	..	..	..	..	*See* A 68 (*c*)
			VI.—*Diseases of the Nervous System and Sense Organs*						
A 70			Vascular lesions affecting central nervous system:—						
	(*a*)	331	Cerebral haemorrhage	26	282	85	308	20	Comprises A 70 (*a*), (*b*) and (*c*)
	(*b*)	332	Cerebral embolism and thrombosis ..						
	(*c*)	330 333–334	Other vascular lesions affecting central nervous system						
			Carried forward ..	2,626	12,903	1,120	15,529	2,738	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,626	12,903	1,120	15,529	2,738	
		VI.—*Diseases of the Nervous System and Sense Organs—contd.*						
A 71	340	Non-meningococcal meningitis ..	6	116	50	122	4	
A 72	345	Multiple sclerosis	..	3	..	3	..	
A 73	353	Epilepsy	3	71	1	74	3	
A 74		Inflammatory diseases of eye:—						
(*a*)	370	Conjunctivitis and ophthalmia ..	6	172	..	178	1	
(*b*)	371–379	Other inflammatory diseases of eye ..	..	..	..	..	..	*See* A 78 (*a*)
A 75	385	Cataract	24	417	2	441	20	
A 76	387	Glaucoma	..	..	..	..	..	*See* A 78 (*a*)
A 77		Otitis media and mastoiditis:—						
(*a*)	390	Otitis externa	..	6	..	6	..	
(*b*)	391–393	Otitis media and mastoiditis ..	3	111	4	114	1	
(*c*)	394	Other inflammatory diseases of ear ..	..	5	..	5	..	
A 78		All other diseases of the nervous system and sense organs:—						
(*a*)	380–384 386, 388 389	All other diseases and conditions of eye	22	920	2	942	59	Includes A 74 (*b*) and A 76
		Carried forward ..	2,690	14,724	1,179	17,414	2,826	

APPENDIX *IV*—*continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,690	14,724	1,179	17,414	2,826	
		VI. *Diseases of the Nervous System and Sense Organs—contd.*						
A 78 (*b*)	342	Intracranial and intraspinal abscess ..	..	7	5	7	1	
(*c*)	343	Encephalitis, myelitis and encephalomyelitis	1	90	33	91	2	
(*d*)	350	Paralysis agitans	20	8	..	28	24	
(*e*)	352	Other cerebral paralysis	..	..	..	..	..	*See* A 78 (*k*)
(*f*)	356	Motor neurone disease and muscular atrophy	..	..	..	..	..	
(*g*)	357	Other diseases of spinal cord ..	20	85	5	105	14	
(*h*)	366	Other and unspecified forms of neuralgia and neuritis	8	56	2	64	..	
(*i*)	367	Other diseases of cranial nerves ..	..	..	..	..	..	*See* A 78 (*k*)
(*j*)	369	Diseases of peripheral autonomic nervous system	..	..	..	..	..	
(*k*)	341,344 351,354 355 360–365 368 395–398	All other diseases of the nervous system and sense organs	6	172	..	178	10	Includes A 78 (*e*), (*f*), (*i*) and (*j*)
		Carried forward ..	2,745	15,142	1,224	17,887	2,877	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	2,745	15,142	1,224	17,887	2,877	
			VII.—*Diseases of the Circulatory System*						
A 79			Rheumatic fever:—						
	(*a*)	400	Rheumatic fever without mention of heart involvement	1	13	1	14	..	
	(*b*)	401	Rheumatic fever with heart involvement	6	87	17	93	1	
	(*c*)	402	Chorea	..	9	1	9	1	
A 80			Chronic rheumatic heart disease:—						
	(*a*)	410–413	Diseases of valves specified as rheumatic	..	..	..	..	..	
	(*b*)	414	Other endocarditis specified as rheumatic	..	..	..	..	..	
	(*c*)	415	Other myocarditis specified as rheumatic	..	..	..	..	..	*See* A 82 (*b*)
	(*d*)	416	Other heart disease specified as rheumatic	..	..	..	..	..	
A 81			Arteriosclerotic and degenerative heart disease:—						
	(*a*)	420	Arteriosclerotic heart disease, including coronary disease	3	120	42	123	5	
	(*b*)	421	Chronic endocarditis not specified as rheumatic	4	276	46	280	15	
			Carried forward ..	2,759	15,647	1,331	18,406	2,899	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,759	15,647	1,331	18,406	2,899	
		VII.—*Diseases of the Circulatory System —contd.*						
A 81 (*c*)	422	Other myocardial degeneration ..	..	..	..	..	..	*See* A 82 (*b*)
A 82		Other diseases of heart:—						
(*a*)	430	Acute and subacute endocarditis ..	..	18	8	18	..	
(*b*)	431	Acute myocarditis not specified rheumatic	1	2	1	3	..	Comprises A 80 (*c*), A81 (*c*) and A 82(*b*)
(*c*)	432	Pericarditis not specified as rheumatic	..	6	1	6	..	
(*d*)	433	Functional disease of heart ..	2	11	2	13	2	
(*e*)	434	Other and unspecified diseases of heart	7	82	21	89	6	
A 83	440–443	Hypertension with heart disease ..	13	523	138	536	10	Comprises A 83 and A 84
A 84	444–447	Hypertension without mention of heart						
A 85		Diseases of arteries:—						
(*a*)	450	General arteriosclerosis	1	14	6	15	1	
(*b*)	451	Aortic aneurysm specified as non-syphilitic and dissecting aneurysm ..	1	34	11	35	1	
(*c*)	452	Other aneurysm, except of heart and aorta	..	14	4	14	..	
(*d*)	453	Peripheral vascular disease ..	..	..	..	..	..	
(*e*)	454	Arterial embolism and thrombosis ..	..	..	..	..	..	
(*f*)	455	Gangrene of unspecified cause ..	3	37	1	40	5	
		Carried forward ..	2,787	16,388	1,524	19,175	2,924	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,787	16,388	1,524	19,175	2,924	
		VII.—*Diseases of the Circulatory System —contd.*						
A 85 (*g*)	456	Other diseases of arteries ..	..	9	..	9	..	
A 86		Other diseases of circulatory system:—						
(*a*)	460,462	Varicose veins	..	34	..	34	..	
(*b*)	461	Haemorrhoids	10	436	..	446	11	
(*c*)	463–464	Phlebitis and thrombophlebitis ..	..	7	..	7	..	
(*d*)	465	Pulmonary embolism and infarction ..	..	..	..	..	..	
(*e*)	466	Other venous embolism and thrombosis	..	8	2	8	..	
(*f*)	467	Other diseases of circulatory system ..	..	41	..	41	..	
(*g*)	468	Adenitis, Lymphadenitis, and other diseases of lymph nodes and lymph channels	1	83	1	84	4	
		VIII.—*Diseases of the Respiratory System*						
A 87		Acute upper respiratory infections:—						
(*a*)	470	Acute nasopharyngitis (common cold)	3	636	..	639	4	
		Carried forward ..	2,801	17,642	1,527	20,443	2,943	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,801	17,642	1,527	20,443	2,943	
		VIII.—*Diseases of the Respiratory System —contd.*						
A 87 (*b*)	471	Acute sinusitis	..	61	..	61	1	
(*c*)	472	Acute pharyngitis	..	..	..	..	..	
(*d*)	473	Acute tonsillitis	9	735	1	744	7	
(*e*)	474	Acute laryngitis and tracheitis ..	..	17	..	17	..	
(*f*)	475	Acute upper respiratory infection of multiple or unspecified sites ..	..	3	1	3	..	
A 88	480–483	Influenza	..	93	..	93	..	
A 89	490	Lobar Pneumonia	8	433	41	441	5	
A 90	491	Broncho-pneumonia	12	781	347	793	8	
A 91	492–493	Primary atypical, other and unspecified pneumonia	8	83	4	91	2	
A 92	500	Acute bronchitis	..	89	3	89	1	
A 93		Bronchitis, chronic and unqualified:—						
(*a*)	501	Bronchitis unqualified	4	406	2	410	4	
(*b*)	502	Chronic bronchitis	5	54	4	59	1	
A 94	510	Hypertrophy of tonsils and adenoids ..	..	..	..	..	..	
A 95		Empyema and Abscess of lung:—						
(*a*)	518	Empyema	2	38	10	40	1	
(*b*)	521	Abscess of lung	10	37	7	47	9	
A 96	519	Pleurisy	34	150	4	184	23	
		Carried forward ..	2,893	20,622	1,951	23,515	3,005	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,893	20,622	1,951	23,515	3,005	
		VIII.—*Diseases of the Respiratory System —contd.*						
A 97		All other respiratory diseases:—						
(*a*)	517	Other diseases of upper respiratory tract	1	136	..	137	..	
(*b*)	520	Spontaneous pneumothorax ..	..	..	..	..	..	
(*c*)	522	Pulmonary congestion and hypostasis	..	1	1	1	..	
(*d*)	525	Other chronic interstitial pneumonia ..	..	1	..	1	..	
(*e*)	523	Pneumoconiosis	..	..	..	..	..	
(*f*)	526	Bronchiectasis	6	114	8	120	5	
(*g*)	511–516 524 527	All other respiratory diseases ..	11	117	12	128	11	
		IX.—*Diseases of the Digestive System*						
A 98		Diseases of teeth and supporting structures:—						
(*a*)	530	Dental caries	..	5	..	5	..	
(*b*)	532.0	Gingivitis	1	46	..	47	1	Comprises A 98 (*b*) and (*c*)
(*c*)	532.1, 532.2	Pyorrhoea						
		Carried forward ..	2,912	21,042	1,972	23,954	3,022	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡ Total cases treated	§ Remaining at end of 1953	Remarks
		Brought forward ..	2,912	21,042	1,972	23,954	3,022	
		IX.—*Diseases of the Digestive System —contd.*						
A 98 (*d*)	531,533–535	Other diseases of teeth and supporting structures	..	..	..	..	..	
A 99	540	Ulcer of stomach	9	302	30	311	12	
A 100	541	Ulcer of duodenum	1	93	6	94	3	
A 101	543	Gastritis and duodenitis	1	162	1	163	3	
A 102	550–553	Appendicitis	13	944	10	957	19	
A 103		Intestinal obstruction and hernia:—						
(*a*)	560	Hernia of abdominal cavity without mention of obstruction ..	8	505	3	513	3	
(*b*)	561	Hernia of abdominal cavity with obstruction	..	96	8	96	..	
(*c*)	570.0	Intussusception	..	82	19	82	..	
(*d*)	570.3	Volvulus	..	..	..	..	..	
(*e*)	570.1,570.2 570.4,570.5	Other intestinal obstruction ..	..	..	..	..	..	
A 104		Gastro-enteritis and colitis, except diarrhoea of the new born:—						
(*a*)	571.0	Gastro-enteritis and colitis, ages between four weeks and two years ..	20	1,293	383	1,313	25	Includes A 132 (*b*)
		Carried forward ..	2,964	24,519	2,432	27,483	3,087	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡ Total cases treated	§ Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	2,964	24,519	2,432	27,483	3,087	
		IX.—*Diseases of the Digestive System —contd.*						
A 104 (*b*)	571.1	Gastro-enteritis and colitis, ages two years and over	5	562	55	567	7	Includes A 104 (*b*) and (*c*)
(*c*)	572	Chronic enteritis and ulcerative colitis	..	..	..	..	..	
A 105		Cirrhosis of liver:—						
(*a*)	581.0	Cirrhosis of liver without mention of alcoholism	7	138	24	145	9	
(*b*)	581.1	Cirrhosis of liver with alcoholism ..	..	8	1	8	..	
A 106		Cholelithiasis and Cholecystitis:—						
(*a*)	584	Cholelithiasis	1	61	14	62	1	
(*b*)	585	Cholecystitis without mention of calculi	5	119	2	124	5	
A 107		Other diseases of Digestive System:—						
(*a*)	536	Stomatitis	1	50	..	51	..	
(*b*)	537, 538	Other diseases of buccal cavity ..	..	..	..	..	..	
(*c*)	539.0	Functional disorders of oesophagus ..	2	65	11	67	2	Comprises A 107 (*c*) and (*d*)
(*d*)	539.1	Stricture or obstruction of oesophagus						
(*e*)	544	Disorders of function of stomach ..	10	193	8	203	9	Comprises A 107 (*e*) and (*f*)
(*f*)	542–545	Other diseases of stomach and duodenum						
		Carried forward ..	2,995	25,715	2,547	28,710	3,120	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡ Total cases treated	§Remaining at end of 1953	Remarks
		Brought forward ..	2,995	25,715	2,547	28,710	3,120	
		IX.—*Diseases of the Digestive System —contd.*						
A 107 (*g*)	573.0	Constipation	..	68	..	68	..	
(*h*)	573 except 573.0	Other functional disorders of intestines	..	..	..	..	..	*See* A 107 (*i*)
(*i*)	574	Anal fissure and fistula	1	147	2	148	2	Includes A 107 (*h*), (*i*) and (*l*)
(*j*)	575	Abscess of anal and rectal regions ..	1	139	2	140	2	
(*k*)	576	Peritonitis	..	50	23	50	1	
(*l*)	577, 578	Other diseases of intestines and peritoneum	..	..	..	..	..	*See* A 107 (*i*)
(*m*)	580	Acute yellow atrophy of liver ..	3	38	19	41	3	
(*n*)	582, 583	Other diseases of liver	4	56	4	60	1	
(*o*)	586	Other diseases of gall-bladder and biliary ducts	..	4	1	4	..	
(*p*)	587	Diseases of pancreas	..	10	1	10	1	
		Carried forward ..	3,004	26,227	2,599	29,231	3,130	

APPENDIX *IV*—*continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡Total cases treated	§Remaining at end of 1953	Remarks
		Brought forward ..	3,004	26,227	2,599	29,231	3,130	
		X.—*Diseases of the Genito-Urinary System*						
A 108	590	Acute nephritis	4	243	14	247	11	
A 109		Chronic, other and unspecified nephritis:—						
(*a*)	591	Nephritis with oedema, including nephrosis	..	..	..	..	..	*See* A 109 (*c*)
(*b*)	592	Chronic nephritis	8	104	30	112	3	
(*c*)	593	Nephritis not specified as acute or chronic	2	43	19	45	6	Includes A 109 (*a*) and (*c*)
(*d*)	594	Other renal sclerosis	..	..	..	..	..	
A 110	600	Infections of kidney	8	235	5	243	1	
A 111		Calculi of urinary system:—						
(*a*)	602	Calculi of kidney and ureter ..	2	278	1	280	1	
(*b*)	604	Calculi of other parts of urinary system	1	67	2	68	2	
A 112	610	Hyperplasia of prostate	..	..	..	..	..	*See* A 114 (*f*)
A 113	620, 621	Diseases of breast	..	57	..	57	..	
A 114		Other diseases of genito-urinary system:—						
(*a*)	603	Other diseases of kidney and ureter ..	..	..	..	..	..	
(*b*)	605	Cystitis	1	41	1	42	2	
(*c*)	606	Other diseases of bladder ..	..	17	..	17	..	
(*d*)	608	Stricture of urethra	1	23	1	24	..	
(*e*)	609	Other diseases of urethra ..	..	58	..	58	2	
(*f*)	612	Other diseases of prostate ..	3	76	3	79	5	Includes A 112 and A 114 (*f*)
(*g*)	613	Hydrocele	3	185	..	188	2	
		Carried forward ..	3,037	27,654	2,675	30,691	3,165	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡Total cases treated	§Remaining at end of 1953	Remarks
		Brought forward ..	3,037	27,654	2,675	30,691	3,165	
		X.—*Diseases of the Genito-Urinary System —contd.*						
A 114 (*h*)	614	Orchitis and epididymitis ..	4	44	..	48	..	
(*i*)	611–615–617	Other diseases of male genital organs ..	1	179	..	180	1	
(*j*)	622–624	Acute salpingitis and oophoritis ..	..	..	..	..	..	
(*k*)	625	Other diseases of ovary and Fallopian tube	1	161	3	162	5	
(*l*)	626	Diseases of parametrium and pelviperitoneum (female)	..	15	..	15	..	
(*m*)	630	Infective disease of uterus, vagina and vulva	9	243	4	252	..	Comprises A 114 (*m*) and (*n*)
(*n*)	631–633	Other diseases of uterus						
(*o*)	634	Disorders of menstruation ..	5	307	..	312	2	Comprises A 114 (*o*) and (*p*)
(*p*)	635–637	Other diseases of female genital organs						
(*q*)	601, 607	All other diseases of the genito-urinary system	..	..	..	..	..	
		Carried forward ..	3,057	28,603	2,682	31,660	3,173	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡ Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,057	28,603	2,682	31,660	3,173	
			XI.—*Deliveries and Complications of Pregnancy, Childbirth and the Puerperium*						
A 115			Sepsis of pregnancy, childbirth and the puerperium:—						
	(*a*)	640	Pyelitis and pyelonephritis of pregnancy	..	3	..	3	..	
	(*b*)	641	Other infections of genito-urinary tract during pregnancy	..	..	..	..	..	
	(*c*)	681	Sepsis of childbirth and the puerperium	2	56	..	58	1	
	(*d*)	682	Puerperal phlebitis and thrombosis ..	..	2	2	2	..	
	(*e*)	684	Puerperal pulmonary embolism ..	..	..	..	..	..	
A 116			Toxaemias of pregnancy and the puerperium:—						
	(*a*)	642.2	Pre-eclampsia of pregnancy ..	..	3	3	3	..	
	(*b*)	642.3	Eclampsia of pregnancy	..	58	5	58	2	Includes A 116 (*b*), and (*g*)
	(*c*)	642.4	Hyperemesis gravidarum ..	..	52	..	52	..	
	(*d*)	642.5	Acute yellow atrophy of liver of pregnancy	..	..	..	..	..	
	(*e*)	642.5	Other toxaemias of pregnancy ..	..	772	6	772	3	
	(*f*)	652	Abortion with toxaemia, without mention of sepsis	..	..	..	..	..	
	(*g*)	685	Puerperal eclampsia	..	..	..	..	..	*See* A 116 (*b*)
	(*h*)	686	Other forms of puerperal toxaemia ..	..	..	..	..	..	
A 117			Haemorrhage of pregnancy and childbirth:—						
	(*a*)	643	Placenta praevia	..	190	3	190	2	
			Carried forward ..	3,059	29,739	2,701	32,798	3,181	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward . .	3,059	29,739	2,701	32,798	3,181	
			XI.—*Deliveries and Complications of Pregnancy, Childbirth and the Puerperium —contd.*						
A 117	(*b*)	644	Other haemorrhage of pregnancy . .	. .	1,335	12	1,335	6	
	(*c*)	670	Delivery complicated by placenta praevia or antepartum haemorrhage . .	. .	. .	. .	. .	. .	
	(*d*)	671	Delivery complicated by retained placenta	. .	. .	. .	. .	. .	
	(*e*)	672	Delivery complicated by other postpartum haemorrhage	. .	. .	. .	. .	. .	
A 118		650	Abortion without mention of sepsis or toxaemia	6	1,263	1	1,269	10	
A 119		651	Abortion with sepsis	. .	41	2	41	. .	
A 120			Other complications of pregnancy, childbirth and the puerperium:—						
	(*a*)	645	Ectopic pregnancy	1	95	1	96	1	
	(*b*)	646	Anaemia of pregnancy	3	32	6	35	2	
	(*c*)	683	Pyrexia of unknown origin during the puerperium	. .	. .	. .	. .	. .	
	(*d*)	688.1	Puerperal psychoses	. .	. .	. .	. .	. .	
	(*e*)	689	Mastitis and other disorders of lactation	. .	11	. .	11	. .	
			Carried forward . .	3,069	32,516	2,723	35,585	3,200	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,069	32,516	2,723	35,585	3,200	
			XI.—*Deliveries and Complications of Pregnancy, Childbirth and the Puerperium—contd.*						
A 120	(*f*)	647–649 673–680 687, 688.0 688.2–688.3	Other complications of pregnancy, childbirth and the puerperium ..	10	1,708	5	1,718	3	
	(*g*)	660	Delivery without complications ..	205	16,820	..	17,025	200	
			XII.—*Diseases of the Skin and Cellular Tissue*						
			XIII.—*Diseases of the Bones and Organs of Movement*						
A 121			Infections of skin and subcutaneous tissue:—						
	(*a*)	690	Boil and carbuncle	3	96	..	99	3	
	(*b*)	691–693	Cellulitis and abscess	19	623	13	642	20	
	(*c*)	694–698	Other infections of skin and subcutaneous tissue	..	..	..	..	..	
			Carried forward ..	3,306	51,763	2,741	55,069	3,426	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward . .	3,306	51,763	2,741	55,069	3,426	
		XIII.—*Diseases of the Bones and Organs of Movement—contd.*						
A 122		Arthritis and spondylitis:—						
(*a*)	720	Acute arthritis due to pyogenic organisms	. .	. .	. .	. .	. .	
(*b*)	721	Acute nonpyogenic arthritis . .	. .	. .	. .	. .	. .	
(*c*)	722	Rheumatoid arthritis and allied conditions	12	179	3	191	20	
(*d*)	723–725	Arthritis specified and unspecified . .	. .	. .	. .	. .	. .	
A 123		Muscular rheumatism and rheumatism, unspecified:—						
(*a*)	726	Muscular rheumatism	. .	. .	. .	. .	. .	
(*b*)	727	Rheumatism unspecified . .	. .	. .	. .	. .	. .	
A 124	730	Osteomyelitis and periostitis . .	13	136	1	149	5	
A 125		Ankylosis and acquired musculoskeletal deformities:—						
(*a*)	737	Ankylosis of joint	. .	. .	. .	. .	. .	
(*b*)	745–749	Other acquired musculoskeletal deformities	. .	. .	. .	. .	. .	
A 126		All other diseases of skin and musculoskeletal system:—						
(*a*)	715	Chronic ulcer of skin (including tropical ulcer)	5	128	. .	133	5	
		Carried forward . .	3,336	52,206	2,745	55,542	3,456	

APPENDIX *IV*—*continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,336	52,206	2,745	55,542	3,456	
			XIII.—*Diseases of the Bones and Organs of Movement—contd.*						
A 126	(*b*)	700–714 716	All other diseases of skin and subcutaneous tissue	21	432	7	453	13	
	(*c*)	731–736 738–744	All other diseases of musculoskeletal system	1	48	3	49	2	
			XIV.—*Congenital Malformations*						
A 127		751	Spina bifida and meningocele ..	..	11	2	11	1	
A 128		754	Congenital malformation of circulatory system	4	68	45	72	1	
A 129			All other congenital malformations:—						
	(*a*)	750	Monstrosity	..	5	..	5	..	
	(*b*)	752	Congenital hydrocephalus ..	1	12	3	13	..	
	(*c*)	753	Other congenital malformations of nervous system and sense organs ..	..	..	..	..	..	
	(*d*)	755	Cleft palate and harelip	1	142	1	143	3	
			Carried forward ..	3,364	52,924	2,806	56,288	3,476	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	3,364	52,924	2,806	56,288	3,476	
		XIV.—*Congenital Malformations—contd.*						
A 129 (*e*)	756.0	Congenital hypertrophic pyloric stenosis	..	4	2	4	..	
(*f*)	756.1	Imperforate anus	1	16	10	17	..	
(*g*)	756.2	Other congenital malformations of digestive system	..	..	..	..	..	
(*h*)	757	Congenital malformations of genito-urinary system	..	..	..	..	..	*See* A 129 (*j*)
(*i*)	758	Congenital malformations of bone and joint	..	..	..	..	..	*See* A 129 (*j*)
(*j*)	759	Other and unspecified congenital malformations, not elsewhere classified	..	65	16	65	..	Includes A 129 (*h*) and (*i*)
		XV.—*Certain Diseases of Early Infancy*						
A 130		Birth injuries:—						
(*a*)	760	Intracranial and spinal injury at birth ..	..	..	..	..	..	
(*b*)	761	Other birth injury	..	..	..	..	..	
		Carried forward ..	3,365	53,009	2,834	56,374	3,476	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§ Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	3,365	53,009	2,834	56,374	3,476	
		XV.—*Certain Diseases of Early Infancy —contd.*						
A 131	762	Post-natal asphyxia and atelectasis ..	..	10	5	10	..	
A 132		Infections of the newborn:—						
(*a*)	763	Pneumonia of newborn	..	..	..	..	..	
(*b*)	764	Diarrhoea of newborn	..	..	..	..	..	*See* A 104 (*a*)
(*c*)	765	Ophthalmia neonatorum ..	..	..	..	..	..	
(*d*)	766	Pemphigus neonatorum	..	5	..	5	1	
(*e*)	767	Umbilical sepsis	..	10	3	10	..	
(*f*)	768	Other sepsis of newborn ..	..	..	..	..	..	
A 133	770	Haemolytic disease of newborn ..	..	26	23	26	..	
A 134	769 771,772	All other defined diseases of early infancy	..	15	5	15	..	
A 135		Ill-defined diseases peculiar to early infancy, and immaturity unqualified:—						
(*a*)	773	Ill-defined diseases peculiar to early infancy	..	20	10	20	..	
(*b*)	754–776	Immaturity and immaturity unqualified	1	96	50	97	1	
		Carried forward ..	3,366	53,191	2,930	56,557	3,478	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,366	53,191	2,930	56,557	3,478	
			XVI.—*Symptoms, Senility and Ill-Defined Conditions*						
A 136		794	Senility without mention of psychoses	..	14	1	14	3	
A 137			Ill-defined and unknown causes of morbidity and mortality:—						
	(*a*)	780–789 except 788.8	Symptoms referable to systems or organs..	..	55	2	55	2	
	(*b*)	788.8	Pyrexia of unknown origin ..	..	..	..	..	..	
	(*c*)	793	Observation, without need for further medical care	12	368	..	380	14	
	(*d*)	795.1	Malingering	..	28	..	28	..	
	(*e*)	795.2	Sudden death (cause unknown) ..	..	..	..	..	..	
	(*f*)	795.3	Found dead (cause unknown) ..	..	..	..	..	..	
	(*g*)	790–792 795.0 795.4 795.5	Other ill-defined and unknown causes of morbidity and mortality ..	83	900	48	983	47	
			Carried forward ..	3,461	54,556	2,981	58,017	3,544	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,461	54,556	2,981	58,017	3,544	
			XVII.—*Accidents, Poisonings and Violence*						
			'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)						
AE 138		E810–E835	Motor vehicle accidents	19	768	63	787	17	
AE 139			Other Transport Accidents:—						
	(*a*)	E800–E802	Railway accidents	..	2	..	2	..	
	(*b*)	E850–E858	Water transport accidents ..	..	..	..	..	..	
	(*c*)	E860–E866	Aircraft accidents	..	..	..	..	..	
	(*d*)	E840–E845	Other road vehicle accidents ..	39	515	14	554	34	
AE 140			Accidental poisoning:—						
	(*a*)	E870	Accidental poisoning by morphia and other opium derivatives ..	..	..	..	..	..	
	(*b*)	E874	Accidental poisoning by other analgesic and soporific drugs	..	..	..	..	..	
	(*c*)	E878	Accidental poisoning by other and unspecified drugs	..	..	..	..	..	
	(*d*)	E883	Accidental poisoning by corrosive aromatics, acids and caustic alkalies	..	..	..	..	..	
			Carried forward ..	3,519	55,841	3,058	59,360	3,595	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§ Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	3,519	55,841	3,058	59,360	3,595	
		XVII.—*Accidents, Poisonings and Violence —contd.*						
		'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)—contd.						
AE 140 (*e*)	E884	Accidental poisoning by mercury and its compounds	..	..	..	..	..	
(*f*)	E885	Accidental poisoning by lead and its compounds	1	2	1	3	1	
(*g*)	E886	Accidental poisoning by arsenic and antimony and their compounds ..	..	8	..	8	..	
(*h*)	E888	Accidental poisoning by other and unspecified solid or liquid substances ..	..	1	..	1	..	
(*i*)	E890–E895	Accidental poisoning by gases and vapours	..	1	..	1	..	
(*j*)	E871–E873 E875–E877 E879–E882 E887	Other accidental poisoning ..	2	109	2	111	3	
AE 141	E900–E904	Accidental falls	27	948	61	975	24	
AE 142	E912	Accident caused by machinery ..	..	39	1	39	1	
AE 143	E916	Accident caused by fire and explosion of combustible material ..	9	125	2	134	2	
AE 144	E917–E918	Accident caused by hot substance, corrosive liquid, steam and radiation ..	8	208	10	216	4	
		Carried forward ..	3,566	57,282	3,135	60,848	3,630	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	‡Total cases treated	§ Remaining at end of 1953	Remarks
		Brought forward ..	3,566	57,282	3,135	60,848	3,630	
		XVII.—*Accidents, Poisonings and Violence —contd.*						
		'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)—contd.						
AE 145	E919	Accident caused by firearms ..	..	2	..	2	..	
AE 146	E929	Accidental drowning and submersion ..	..	7	..	7	..	
AE 147		All other accidental causes:—						
(*a*)	E920	Foreign body entering eye and adnexa	..	..	..	..	..	
(*b*)	E923	Foreign body entering other orifice ..	1	51	1	52	1	Includes A 147 (*b*) and (*s*)
(*c*)	E927	Accidents caused by bites and stings of venomous animals and insects ..	..	30	1	30	..	
(*d*)	E928	Other accidents caused by animals ..	..	15	..	15	..	
(*e*)	E913	Accidents caused by cutting or piercing instruments	..	55	..	55	..	
(*f*)	E914	Accidents caused by electric current ..	..	6	..	6	..	
(*g*)	E924, E925,	Accidental mechanical suffocation ..	..	..	..	..	..	
(*h*)	E926	Lack of care of infants under one year of age	..	..	..	..	..	
(*i*)	E931	Excessive heat	..	1	..	1	..	
(*j*)	E932	Excessive cold	..	..	..	..	..	
		Carried forward ..	3,567	57,449	3,137	61,016	3,631	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	3,567	57,449	3,137	61,016	3,631	
		XVII.—*Accidents, Poisonings and Violence —contd.*						
		'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)—contd.						
AE 147 (*k*)	E933	Hunger, thirst and exposure ..	..	2	..	2	..	
(*l*)	E934	Cataclysm	..	..	..	..	..	
(*m*)	E935	Lightning	..	..	..	..	..	
(*n*)	E936	Other and unspecified accidents ..	..	7	..	7	..	
(*o*)	E940, E941	Vaccinia including post-vaccinal encephalitis	..	2	1	2	..	
(*p*)	E942	Other complications of small-pox vaccination	..	..	..	..	..	
(*q*)	E954	Anaesthetic accidents	..	..	..	..	..	
(*r*)	E943–E946 E950–E953 E955–E959	Accidents due to medical or surgical intervention	..	..	..	..	..	
(*s*)	E910, E911 E915 E921–E922 E930 E960–E962	All other accidental causes ..	..	..	..	..	..	*See* AE 147 (*b*)
		Carried forward ..	3,567	57,460	3,138	61,027	3,631	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number	Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§ Remaining at end of 1953	Remarks
				Admissions	Deaths			
		Brought forward ..	3,567	57,460	3,138	61,027	3,631	
		XVII.—*Accidents, Poisonings and Violence —contd.*						
		'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)—contd.						
AE 148		Suicide and self-inflicted injury:—						
(*a*)	E970	Suicide and self-inflicted injury by analgesic and soporific substances ..	9	138	47	147	6	Comprises AE 148 (*a*) and (*b*)
(*b*)	E971	Suicide and self-inflicted injury by other solid and liquid substances ..						
(*c*)	E972	Suicide and self-inflicted injury by gases in domestic use	..	..	..	..	..	
(*d*)	E973	Suicide and self-inflicted injury by other gases	..	..	..	..	..	
(*e*)	E974	Suicide and self-inflicted injury by hanging or strangulation ..	..	4	2	4	..	
(*f*)	E975	Suicide and self-inflicted injury by submersion (drowning) ..	..	14	..	14	..	
(*g*)	E976	Suicide and self-inflicted injury by firearms and explosives ..	..	..	..	..	..	
(*h*)	E977	Suicide and self-inflicted injury by cutting or piercing instruments ..	..	7	1	7	..	
		Carried forward ..	3,576	57,623	3,188	61,199	3,637	

APPENDIX *IV—continued*

RETURN OF DISEASES AND DEATHS FOR THE YEAR 1953—*continued*

Intermediate List Number		Detailed List Number	Cause Groups (Diseases)	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§ Remaining at end of 1953	Remarks
					Admissions	Deaths			
			Brought forward ..	3,576	57,623	3,188	61,199	3,637	
			XVII.—*Accidents, Poisonings and Violence —contd.*						
			'E' Code: Alternative Classification of Accidents, Poisonings and Violence (External Causes)—contd.						
AE 148	(*i*)	E978	Suicide and self-inflicted injury by jumping from high places ..	..	..	..	..	..	
	(*j*)	E963, E979	Suicide and self-inflicted injury by other and unspecified means ..	..	3	..	3	..	
AE 149			Homicide and injury purposely inflicted by other persons (not in war):—						
	(*a*)	E980	Non-accidental poisoning by another person	..	..	..	..	..	
	(*b*)	E981	Assault by firearms and explosives ..	1	23	5	24	..	
	(*c*)	E982	Assault by cutting and piercing instruments	1	110	4	111	..	
	(*d*)	E964, E983	Assault by other means	3	229	4	232	2	
	(*e*)	E984	Injury by intervention of police ..	..	..	..	..	..	
	(*f*)	E985	Execution (legal)	..	..	..	..	..	
AE 150		E990–E999 E965	Injury resulting from operations of war	..	..	..	..	..	
			Grand Total ..	3,581	57,988	3,201	61,569	3,639	

APPENDIX *IV—continued*

IN-PATIENTS BY RACIAL GROUPS 1953

Racial Group	†Remaining at end of 1952	YEARLY TOTAL		‡Total cases treated	§Remaining at end of 1953	Remarks
		Admissions	Deaths			
Europeans	39	1,349	21	1,388	35	
Eurasians	48	941	45	989	47	
Chinese	2,860	42,868	2,675	45,728	2,894	
Indians and Pakistanis	370	9,172	318	9,542	399	
Malays	248	3,113	126	3,361	254	
Javanese	3	141	10	144	7	
Others	15	437	6	452	3	
Total ..	3,583	58,021	3,201	61,604	3,639	
Less healthy persons admitted to hospital to accompany children or friends	2	33	..	35	..	
GRAND TOTAL ..	3,581	57,988	3,201	61,569	3,639	

APPENDIX *V*

TABLE SHOWING MAIN CAUSES OF MORBIDITY OF IN-PATIENTS IN THE GENERAL HOSPITAL, FOR THE YEAR 1953 AND 1952

Causes of Death	1953		1952	
	Admissions	Deaths	Admissions	Deaths
Enteric Group	94	8	133	4
Typhus	36	..	41	..
Malaria	131	7	143	7
Diphtheria	27	4	15	2
Influenza	63	..	49	1
Dysentery, Diarrhoea and Enteritis	1,853	456	1,562	504
Leprosy	4	..	1	..
Tuberculosis Respiratory System	499	77	560	112
Other Tuberculosis Diseases	456	145	492	171
Cancer	1,005	187	895	167
Beri Beri	25	8	33	10
Cerebral Haemorrhage	279	83	222	62
Diabetis	270	16	206	7
Bronchitis	490	9	253	6
Pneumonia All Forms	1,189	384	1,067	386
Other Respiratory Diseases	818	47	793	35
Ulcer of Stomach, Duodenum etc.	383	36	332	26
Ankylostomiasis	46	..	62	1
Other Intestinal Parasites	130	4	126	3
Appendicitis	914	9	837	8
Cirrhosis of Liver	143	23	116	14
Acute and Chronic Nephritis	341	43	325	57
Venereal Affections	54	18	101	20
Congenital Debility, Malnutrition, Premature Birth, etc.	135	64	51	32
Suicidal	165	49	147	41
Other forms of Violence	3,256	224	3,103	174
Other Diseases	12,678	819	11,088	749
Total	25,484	2,720	22,753	2,599

APPENDIX VI

RETURN OF SPECIMENS EXAMINED IN CLINICAL LABORATORIES I AND II AND OUT-PATIENTS DEPARTMENT FROM 1st JANUARY, 1953 TO 31st DECEMBER, 1953

Examination of Blood—Physiological:—		
Leucocyte Count	21,004	
Differential Leucocyte Count	20,180	
Erythrocyte Count	16,311	
Estimation of Hæmoglobin	17,443	
Blood Picture Myeloid Leukæmia	61	
Blood Picture Lymphoid Leukæmia	4	
Parasite Count	44	
Size of R.B.C. (average)	17	
Reticulocyte Count	359	
Thrombocyte Count	607	
Bleeding Time	349	
Coagulation Time	370	
Blood Picture	362	
Colour Index	12	
Fragility of R.B.C.	14	
Packed Cell Volume	153	
Mean Corpuscular Volume	3	
Mean Corpuscular Hæmoglobin Content	3	
Eosinophile Count	191	
Prothrombin Time	447	
Blood Sedimentation Rate	6,549	
		84,483
Examination of Blood—Biochemical:—		
Blood Urea	2,125	
Sugar	370	
Cholestrol	178	
Uric Acid	43	
Calcium	192	
Phosphate	143	
Chlorides	17	
Protein	948	
Icteric Index	905	
Van Den Bergh Reaction	905	
Glucose Tolerance Test—Spec.	1,932	
Takata Ara Test—Negative	196	
Positive	144	
Fouchets Test—Positive	1	
Serum Non-Protein Nitrogen	1	
Alkaline Reserve	50	
Serum Annylase	12	
Napier's Test—Positive	1	
Negative	14	
Chopra's Antimony Test—Positive	1	
Negative	3	
Serum Bibirubin	23	
Alkaline Phosphatese	163	
Thymol Turbidity	96	
Cephalin Choasterol Flocculation Test	2	
		8,465
Carried forward		92,948

APPENDIX VI—continued

Brought forward ...		92,948
Examination of Urine—Biochemical:—		
Urea Clearance Test ...	185	
Urea Concentration Test—Spec. ...	208	
Urine Urea ...	4	
Bence Jones Protein ...	14	
Creatine ...	2	
Creatinine ...	2	
Uric Acid ...	1	
Esbach's Test ...	15	
Phenol ...	1	
Acidity ...	1	
Urinary Diastase ...	69	
Chlorides ...	49	
Addis Count ...	2	
Diazo Reaction ...	11	
Spectroscopic Examination ...	6	
Ozazone Test ...	1	
		571
Examination of Urine—Routine:—		
Microscopic Examination and Albumen ...	46,956	
Chemical Examination (Acetone, Sugar, etc.) ...	11,789	
24 hours specimen for T.B.—Negative ...	13	
Micro Filaria Negative ...	9	
Micro Filaria Positive ...	3	
Albumen Estimation ...	1	
		58,771
Examination of Cerebro-Spinal Fluid:—		
Routine Examination—		
1. Cell Count 4. Sugar (Qualitative) 2. Total Protein 5. Chlorides 3. Globulin 6. Cytology and Smear	3,717	
Sugar Estimation ...	1,686	
Urea ...	3	
Clot for Tubercle Bacilli—Negative ...	574	
Positive ...	78	
Smears: Meningococci ...	9	
Pneumococci ...	6	
Gram. Neg. Bacilli ...	8	
Other Organisms ...	4	
Tuberculosis ...	3	
		6,088
Examination of Cisternal and Other Body Fluids:—		
Routine Examination (same as C.S.F.) ...	5	
Sternal Smear—Myelogram ...	12	
L.D. Bodies Negative ...	10	
L.D. Bodies Positive ...	2	
Pleural Fluid—Cytology and Org. ...	193	
Cytology and Org. T.B. Positive ...	1	
Ascitic Fluid—Cytology and Org. ...	80	
Hydrocele Fluid for Micro-Filaria—Negative ...	11	
Positive ...	1	
Other Body Fluids ...	90	
Liver Pus for Amœba—Negative ...	3	
Positive ...	2	
Examination of Gastric Content ...	11	
Examination of Gastric Content T.B. Positive ...	2	
		423
Carried forward ...		158,801

APPENDIX VI—continued

Brought forward ...		158,801
Examination of Gastric Contents:—		
Fractional Test Meal—Spec. ...		3,237
B.M.R.—No. of cases ...		1,324
E.C.G.—No. of cases ...		1,740
Examination of Blood Films:—		
Malarial Parasites—Subtertian ...	177	
Benigntertian ...	128	
Quartan ...	2	
Mixed Infection ...	4	
Negative ...	15,633	
Micro-Filaria—Negative ...	864	
Positive ...	81	
Punctate Basophilia—Negative ...	22	
Positive ...	6	
Leishman Donovan Bodies—Negative ...	10	
Positive ...	3	
		16,930
Examination of Smears:—		
Prostatic Smear for G.C.—Negative ...	135	
Positive ...	9	
Urethral Smear for G.C.—Negative ...	56	
Positive ...	16	
Vaginal Smear for G.C.—Negative ...	76	
Positive ...	3	
Cervical Smear for G.C.—Negative ...	35	
Positive ...	5	
Cervical Trichononas—Negative ...	3	
Positive ...	10	
Eye Smear—Positive ...	6	
Eye Smear O.O.—Negative ...	50	
Positive ...	32	
Nasal and Throat Swabs for K.L.B.—Negative ...	598	
Positive ...	39	
Nasal and Throat Swabs for O.O.—Positive ...	555	
T.B. ...	1	
Ear and Skin Clips for L.B.—Negative ...	232	
Positive ...	49	
Skin Scrapings for Fungi—Negative ...	102	
Positive ...	16	
Skin Scrapings for Scubies—Negative ...	25	
Positive ...	9	
Pus for Organisms ...	243	
		2,305
Examination of Sputa:—		
Tubercle Bacilli—Negative ...	9,811	
Positive ...	427	
O.O. ...	307	
Elastic Fibre ...	4	
		10,549
Carried forward ...		194,886

APPENDIX VI—continued

Brought forward		194,886
Examination of Stools:—		
Ova—Negative		16,766
Ankylostoma	2,412	
Ascaris	3,242	
Trichuris Trichura	415	
Oxyuris Vermicularis	21	
Strongyloides	9	
Clonorchis Sinensis	1	
Anky and Ascaris	704	
Anky and T. Trichura	191	
Ascaris and Trichura	313	
Anky, Ascaris and T. Trichura	145	
Anky and Oxyuris Vermicularis	7	
Round and Oxyuris Vermicularis	7	
Anky, Ascaris and O. Vermicularis	1	
T. Trichura and Oxyuris Vermicularis	1	
Stool for Bile	64	
		7,533
Amœba—Negative	5,080	
Entamœba Histolytica	106	
Entamœba Histolytica Cysts	2	
Entamœba Coli	6	
Entamœba Coli Cysts	4	
Entamœba Nana	10	
Giardia Lamblia	49	
Trichomonas Hom.	47	
Strongyloides Stercoralis	16	
Occult Blood—Negative	960	
Positive	1,079	
T.B.—Negative	16	
Positive	9	
		7,384
Total		226,569

APPENDIX *VII*

OUT-PATIENTS

Total Attendances at the Out-Patients Clinics during the year 1953, were distributed as follows:

Hospitals	New Cases	Repetitions	Total Attendances
General Hospital	128,889	353,443	482,332
Kandang Kerbau Maternity Hospital	56,189	100,795	156,984
Tan Tock Seng Hospital	8,059	163,839	171,898
Social Hygiene	21,617	124,650	146,267
Static Floating and Travelling Dispensaries	46,380	45,577	91,957
Police and Families	4,925	19,462	24,387
School clinics at North Canal Road, Paya Lebar and Telok Kurau	15,319	22,438	37,757
Total ..	281,378	830,204	1,111,582

Excludes the Prisons and Maternity and Child Welfare Clinics.

APPENDIX VIII

RESEARCH

(*a*) RADIOLOGICAL

Dr. D. R. McPherson, B.SC., M.B., CH.B., D.M.R.E., D.T.M. & H.

In conjunction with the Department of Surgery, University of Malaya, the investigation of Lympho-spitheliomata was continued, and after the arrival of a full time radiotherapist our share of the work was placed on a more systematic basis.

Towards the end of the year Professor Glaser and Miss Prior of the University of Malaya undertook in conjunction with the Senior Radiologist an investigation into changes in the blood content of the lungs and liver following bleeding. This work was still unfinished at the end of the year.

(*b*) OPHTHALMIC

Dr. A. D. Williamson, M.B., CH.B., D.O.M.S., F.R.C.S.

Clinical surveys of cortisone treatment of epidemic kerato-conjunctivitis and of Terremycin treatment of Trachoma has been carried out in 1953.

The use of the first has been highly successful; of the second very disappointing.

(*c*) MEDICAL

Prof. G. A. Ransome, F.R.C.P., M.R.C.S.

The number of unusual cases admitted to the Wards have been the subject of detailed study some of which have been published. An investigation into the efficacy of various drugs in the treatment of anæmis is being carried out in the Anæmia Clinic. This clinic is also used for the investigation and follow-up of obscure cases of anæmia and leukemia. A large Ecsinophilic Lung Clinic continues to provide further opportunity for research which at the present moment is confined to investigations regarding the etiology of the disease.

Prof. E. S. Monteiro, M.D., F.R.F.P. & S., M.R.C.P., D.C.H.

The following research is in progress under the direction of the Professor of Clinical Medicine:—

The Common Anæmia of Singapore

In this connection, it is interesting to mention the discovery of what we believe to be the only case in Singapore of (Addissonian) pernicious Anæmia in a Chinese male adult. This case has now been followed-up for nearly four years and the full investigation is in the course of publication.

Cortisone and A.C.T.H.

Investigations of the therapeutic value of these hormones continue. We have found them of great value, not only in Rheumatoid Arthritis but also in acute Exfoliative Dermatitis. In the latter disease, its value is unquestionable. We are also using them in Disseminated Lupus Erythematosus with good result. We have treated three cases of the Stevens-Johnson with very favourable result.

The Treatment of Pulmonary Tuberculosis

With Streptomycin, P.A.S. and Isonicotinic Acid Hydrazide are being studied, and we are impressed with the result we are getting, especially in cases which a few years ago would have regarded as beyond hope of recovery.

(*d*) SURGICAL

Prof. D. E. C. Mekie, M.B., CH.B., F.R.C.S., F.I.C.S.

(1) Principal research on the intensive study of the naso pharyngeal tumours.

(2) A study of pheripheral vascular disease in younger patients an unusual type of thromboangitis obliterans is observed in Malaya.

(3) Reconstruction of the œsophangus for caustic soda strictures.

(4) The chemo-therapy of malignant disease.

(5) Surgical treatment of peptic ulcers.

(6) The surgical treatment of apical tuberculosis by extra fascial pneumolysis—Paulino Operation.

APPENDIX VIII—*continued*

Prof. J. A. P. Cameron, M.B., CH.B., F.R.C.S.

The University staff of the Orthopædic Department have of necessity been employed in the routine work of the Unit which has left no time for research work.

The building up of a new department is time consuming and exacting when trained staff and suitable accommodation are in short demand and a clinical recording system has to be made.

The Chief Assistant is still without an office or accommodation in which to carry out research work though the matter is now receiving the attention of the Chief Medical Officer.

During the year some orthopædic conditions have been studied with special attention and some clinical cases have been recorded in the journals.

Publications:—From the Department of Orthopædic Surgery—

Cameron, J. A. P. (1953) Inaugural Address: The Development and future of Orthopædics—*The Medical Journal of Malaya.* Vol. 7, No. 4—June 1953.

Cameron, J. A. P. (1953) Some cases of Arthroplasty of the Hip Joint and of Internal fixation of fractures—*The Medical Journal of Malaya.* Vol. 7, No. 4—June 1953.

Dr. G. Haridas, O.B.E., J.P., M.D., M.R.C.P.

Trial of Oral Streptomycin in non-specific Gastro-Enteritis December 1952—March 1953, by Dr. Loh Siew Gek.

A Clinical study of Terramycin in the treatment of the Respiratory Infections encountered in the Pediatric Unit of General Hospital, Singapore, by Dr. Loh Siew Gek—*Medical Journal of Malaya*—Vol. 7, No. 4, June 1953.